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December 29, 2008

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Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Arizona Corporation Commission
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DEC 29 2008

DOCKETED BY | nr

RE: Arizona Public Service Company Renewable Energy Standard
Docket No. E-01345A-08-0331

Dear Sir or Madam:

Pursuant to Decision No. 70654(December 18, 2008), page 13, line 4-7:

> "Arizona Public Service Company shall make a compliance filing within 15 days of the effective date of this Commission Decision. This filing should include a revised Arizona Public Service Company 2009 Renewable Energy Standard Implementation Plan, and a RES Adjustment Schedule consistent with the Decision."

Enclosed is Arizona Public Service Company's (APS) compliance filing for APS's 2009 Renewable Energy Standard (RES) Implementation Plan, portions of this filing are considered competitively confidential and are being provided pursuant to an executed protective agreement. Also attached is APS' Adjustment Schedule RES, both a clean and redlined version are enclosed. The revised schedule will be effective January 1, 2009.

If you have any questions or concerns, please contact Greg DeLizio at (602) 250-2704.

Sincerely,

Leland Snook

LS/tem

Attachments

CC: Terri Ford (w/o confidential)
Ray Williamson (with confidential)
Barbara Keene (with confidential)
Jeff Pasquinelli (with confidential)
Janet Wagner (w/o confidential)
Brian Bozzo (w/o confidential)
Charles Hains (with confidential)

Attachment A

** Public (Redacted) Version **

APS Renewable Energy Implementation Plan

ATTACHMENT A

APS RES Implementation Plan 2009 to 2013
(Amended based on Decision No. 70654)

Arizona Public Service Company

APS Implementation Plan

2009 to 2013

For The

Renewable Energy Standard

ATTACHMENT A

APS RES Implementation Plan 2009 to 2013
(Amended based on Decision No. 70654)

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ATTACHMENT A

APS RES Implementation Plan 2009 to 2013
(Amended based on Decision No. 70654)

INCLUDED TABLES

ATTACHED EXHIBITS

ATTACHMENT A

APS RES Implementation Plan 2009 to 2013
(Amended based on Decision No. 70654)

1. EXECUTIVE SUMMARY

Arizona Public Service Company ("APS" or "Company") has prepared this Implementation Plan (the "Plan") for the five-year period, 2009-2013, in compliance with the Renewable Energy Standard and Tariff ("RES").[1] The RES Rules require that APS file an annual plan that describes how it intends to comply with the rule requirements for the next five years. In compliance with that provision, APS has prepared this Implementation Plan, which describes the renewable energy resources that may be added during the next five years, the estimated customer funding and tariff amounts required to acquire those resources, and a budget that allocates specific funding. The RES requirement is 2.00% of total retail sales in 2009 and requires 15% of the renewable energy come from distributed energy solutions.

As a separate document, the Company is filing its updated Distributed Energy Administration Plan ("DEAP"). The DEAP addresses the participation process for a wide range of customers, incentive levels, eligible technologies and system requirements, providing a program that APS believes will encourage customer participation. In this filing, APS has made only minor adjustments to the DEAP that was approved as part of the 2008 Implementation Plan.[2]

While both the Implementation Plan and the DEAP are substantially similar to the plans filed for 2008,[3] there are a number of enhancements this year including two new proposed programs and a refined Research, Development, Commercialization, & Integration Program. The Small Generation Pilot Program is designed to simplify the process for small renewable generators to interact with APS when proposing and developing new projects and the Distributed Public Assistance Program was created to begin addressing some of the unique needs of our low income, school, non-profit, and governmental customers. Commercialization & Integration has been enhanced to include Research & Development with a specific earmark for research and development in 2009. There were also a number of minor modifications and incentive adjustments to the DEAP that are discussed in Section 3.E.ii.

APS currently estimates the cost to fully comply with the RES to be $78.4 million in 2009 and increasing to $113.7 million by 2013, with a five year total of $505.2 million. 2012 is expected to be the peak cost year in this five year planning window at $139.4 million, mainly because that is the last year of the ramping up of the Distributed Energy requirement. After 2012 the only increases to the requirement are based on retail sales increases.

RES funding is intended to cover the cost of utility scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for distributed energy resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation are based on APS's existing contracts. These contracts, if brought to fruition, will enable APS to meet or exceed renewable generation and total RES energy targets throughout the five-year planning period. The costs for distributed energy incentives and the

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[1] A.A.C. R14-2-1801, *et. seq.*
[2] ACC Decision No. 70313
[3] Docket No. E-01345A-07-0468, originally filed August 7, 2007 and amended August 30, 2007.

program budget are based on incentives developed as part of the Commission Staff's working group and APS's best estimations of market uptake for the various technologies available to consumers.

Annual increases in the program budget are driven mainly by the annually increasing energy targets. At this time, APS is requesting adjustor funding of $72.4 million for 2009 (the adjustor is currently designed to collect approximately $30 million annually). The requested adjustor amount, along with the $6 million collected in base rates, would total the $78.4 million of funding needed to meet the requirement.

2. INTRODUCTION

A. Renewable Energy Requirements

APS has prepared this Implementation Plan for the five year period 2009-2013 in compliance with the RES Rules. The RES requires that affected utilities satisfy an annual renewable energy requirement by providing a percentage of their electric retail sales from renewable resources. The required percentage for the current implementation period begins at 2.00% in 2009 and increases to 4.00% in 2013.[4] That minimum percentage increases to 15% of the utility's retail sales by the year 2025.[5]

Renewable resources under this rule include "renewable generation" projects which are constructed solely to export their energy production to the utility and distributed energy ("DE"), which is a renewable resource application installed by customers on their premises, and which are used to displace the customer's energy consumption.[6] As part of the RES, the energy generated or displaced by the DE is applied towards the percentage of the utility's distributed renewable energy requirement.[7] In both the instance of Renewable Generation and DE, the unit used to track kilowatt hours ("kWh") derived from renewable resources for purposes of compliance with the RES is the Renewable Energy Credit[8] ("REC"), where one kWh equals one REC.

The RES requires regulated utilities to file an Implementation Plan each year for review and approval by the Arizona Corporation Commission ("ACC" or "Commission").[9] The Plan must describe the procurement of renewable energy resources for the next five calendar years that will meet the requirements of the RES.[10] This description must identify the considered technologies, the expected schedule for the resource incorporation on a year-by-year basis, and a description of

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[4] A.A.C. R14-2-1804(B).
[5] *Id.*
[6] A.A.C. R14-2-1802.B.
[7] A.A.C. R14-2-1805.B.
[8] "Renewable Energy Credit" means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources." A.A.C. R14-2-1801.N.
[9] A.A.C. R14-2-1813.A.
[10] A.A.C. R14-2-1813.B.

the kilowatts ("kW") and kilowatt hours that are expected to be added to the APS portfolio by the incorporation of those resources.[11] The RES provides that costs incurred by the regulated utility consistent with the approved Plan shall be deemed reasonable. Further, the RES provides that implementation of the approved Plan by the utility shall serve to measure the utility's compliance with the RES. Attached as Exhibit 1 is a summary of the APS targets, energy requirements, and program budget.

B. Renewable Generation Challenges and Risks

In developing this Plan, APS has evaluated renewable resources available for procurement in the next one to two years ("the near-term"), as well as those speculated to become available over the remainder of the five year period covered by this Plan and beyond ("the longer-term"). Although there exists uncertainty in the specific details of many of those renewable resources, APS believes it has chosen a strategy that will meet or exceed the renewable generation and total RES energy targets, assuming all existing and planned facilities come to fruition. This strategy also encompasses the beginning of commercial operation of several projects chosen from APS's 2007 Renewable Request for Proposal ("RFP").

The 2009-2013 years of APS's implementation strategy for achieving compliance with RES targets are detailed in this Plan. This Plan and the resulting renewable energy goals do not come without some risk related to meeting the renewable resource targets. Inasmuch as those risks are presently definable and quantifiable, they are identified and discussed in this Plan. Those risks include issues such as: the availability, level and consistency of federal, state and local incentives; availability of renewable energy projects executed by financially and technically sound developers; adequate transmission resources to deliver new resources to APS load; renewable energy projects matching APS's anticipated costs profiles; and the timing of new resource availability.

APS acknowledged the risks identified above and attempted to account for them in its procurement strategy. The timely delivery of energy from renewable resources is critical to APS's compliance with the energy targets, and development of these types of projects typically requires between two to five years. Recent experience across the nation indicates renewable generation projects suffer from high levels of project failure, broadly summarized as the inability to meet contract energy delivery dates. These failures and delays can be attributed to a broad range of issues, but are generally attributed to the immature nature of the renewable resource markets. APS's experience, both with renewable energy projects and with conventional energy technologies, suggests that careful project screening can reduce, but not eliminate, some of the risk associated with project failures.

C. Distributed Energy Targets

The RES requires that affected utilities satisfy a percentage of the annual renewable energy requirement through the addition of distributed energy resources. The required percentage for

[11] *Id.*

the current implementation period is 15% of the total requirement in 2009 and increases to 30% by 2012.[12] That percentage remains at 30% of the total renewable energy requirement through 2025.

Continued public discussion has surrounded the DE targets described in the RES. This discussion has centered on questions related to the magnitude of customer interest in DE, the effect of introducing many new distributed technologies, the ability of the technology suppliers and installers to meet the potential customer demand, and, ultimately, the total cost of incentives required to drive the required customer participation to meet RES compliance. The extent of customer participation is the primary driver of DE results and continues to be unknown and unknowable at this time. While APS does have several years of experience with the Solar Partners Incentive Program ("SPIP"), we only have two months of experience under an incentive program approved in the first implementation plan in 2008. This is simply not enough time to determine if APS's marketing, outreach, and cooperative efforts will assist in inducing customer participation. APS's experience in recent years with the SPIP demonstrated that changes in public policy affecting the program (i.e., state and federal tax incentive increases) and changes in program incentives can have dramatic impacts on customer participation, far beyond those anticipated. There is no way to accurately predict whether the amount of incentives being offered will motivate customers to participate at the necessary rate.

This is particularly germane, because even with availability of significant incentives, customers must still provide personal funding in order to have DE systems installed on their homes or businesses. Today, the typical 3 kW residential distributed photovoltaic system costs about $21,000 to install, attracts about $12,000 in government and utility incentives, and requires a customer investment of about $9,000. To lessen the burden of these large up-front cash outlays, APS is finalizing a program with a third party to market a loan program to potential customers. The loans will be provided by the third party lender at interest rates comparable to home equity loans. The cost of this program to the RES is minimal and relates mainly to transaction processing and reporting. There have also been some recent developments in the marketplace involving the leasing of solar systems that could lessen the financial burden on a homeowner choosing distributed energy.

APS recognizes that DE is an important component of the renewable energy goals of the RES, and, as part of this Plan, APS proposes a funding level believed necessary for compliance. APS recognizes that uncertainty exists with respect to the proposed incentive levels and the total number of RECs that they will generate; however, in order to comply with the DE targets, APS believes the funding level is necessary if consumer demand for DE is adequate. The assumptions used to build the DE program budget are based on incentives developed as part of Commission Staff's Uniform Credit Purchase Program ("UCPP") working group, market insights from those same meetings, and APS's experience with the Solar Partners Incentive Program. If the DE program assumptions prove to be correct, the 2009 cost for this component of the RES Implementation Plan is estimated to be approximately $65.5 million. This amount escalates to approximately $92.6 million in 2012. 2012 is expected to be the peak cost year in this five year

[12] A.A.C. R14-2-1805.B.

planning window because that is the last year of the ramping up of the DE requirement. After 2012, the only increases to the requirement are based on retail sales increases.

APS also intends to issue an RFP for distributed energy in the second half of 2008. APS is hoping for several outcomes from this process including a significant increase in distributed energy on the APS system, additional knowledge of potential technologies and market participants, and potential cost savings for the Program. At this time, APS cannot project any cost savings for 2009, but we are hopeful that one of the outcomes of the RFP will be multiple respondents capable of a several year build-out at a cost lower than current incentives.

D. Required Program Funding

The Implementation Plan proposed by the Company is estimated to cost a total of $505.2 million over the five year period covered by this Plan. This Plan is designed to achieve compliance with the RES requirements. The cost for 2009 is estimated to be approximately $78.4 million and escalates to $113.7 million in 2013, driven mainly by the increasing energy targets. In this implementation plan, APS is requesting an adjustor to recover only the estimated 2009 costs of approximately $78.4 million, resulting in a $42.4 million increase over the $36 million currently collected on an annualized basis. In each succeeding year, as part of its Implementation Plan, APS will continue to request a reset of the adjustor to collect the estimated costs for the following calendar year. Current estimates for each of those years can be seen in Exhibit 2.

Several of the exhibits contained in this Plan include pricing estimates that have been made by APS in development of the program costs. Some of the pricing included in this Plan is pricing from existing competitively confidential contracts. The price estimates are necessary to allow APS to provide the information sought by the Commission as part of the Implementation Plan. In addition, summary expenditures and energy requirements for generation provided on a year-by-year basis could be used to infer much of the competitively confidential pricing information. APS believes it is in the best interest of the Company and our customers to ensure that future suppliers of renewable resources compete for the right to supply renewable energy without a pre-conceived notion of the pricing assumptions or competitively confidential pricing in this plan. Therefore, APS has submitted a redacted version of that confidential information and will provide Staff the competitively confidential information pursuant to an executed Confidentiality Agreement.

This Plan makes reasonable assumptions concerning renewable energy resources, and, as APS gains more experience with renewable resources, future Plans will account for the realties APS encounters in the actual implementation of the RES.

3. 2009 APS IMPLEMENTATION PLAN

A. Energy

The RES identifies the minimum annual percentage of a utility's retail sales that must be obtained from renewable resources. The first year target covered by this Plan is the 2009 percentage of 2.00%. The renewable resource targets required to meet APS's targets for each year are detailed in Exhibit 3A. The targets detailed by the RES are described in two categories, renewable generation and distributed energy resources.

Renewable generation is represented by projects that export their energy production to the utility. These projects are typically large-scale facilities that use renewable resources such as wind, solar, geothermal, biomass, and biogas to generate electricity. Energy produced from those resources is delivered through the transmission and distribution systems and, ultimately, to the utility's customers.

Distributed energy resources are represented by technology applications that are physically installed on the customer's property. Those applications are typically specifically designed for the distributed setting. Distributed applications under the RES include a wide range of technologies; today those technologies are most frequently represented by photovoltaic and solar water heating systems. It can be tied to the existing APS distribution system or it can be installed as a remote application, independent of the APS distribution system. At this time, APS does not plan to install DE at customers' properties; rather, the installation of DE is facilitated by providing customers with financial incentives for the installation of those resources by licensed contractors.

B. Capacity

The RES targets are energy based (kWh), with no capacity (kW) requirements. However, the Plan utilizes generation capacity assumptions to forecast compliance with the energy targets. When equating energy targets to planned capacity levels, it is important to recognize that the capacity factors for various renewable generation technologies vary significantly. Some technologies, such as geothermal and biomass, are very predictable and can produce at capacity factors near 80-90%, similar to conventional base load generation. Some renewable generation technologies, such as solar, are predictable, but have inherently low capacity factors of 15-30%, driven by the daily availability of solar radiation. Other renewable generation technologies, such as wind, are less predictable on a real time basis. However, wind will generally produce capacity factors in the range of 25-40% annually, depending on the characteristics of the wind resource in a given location.

The mixture of the technologies employed is critical and the ultimate mixture will dictate the additional capacity required to achieve the energy targets. Exhibit 3B provides the level of capacity for the specific mixture of technologies assumed in this Plan for the coming five years. Exhibit 3B is not intended to be an exact representation of the resources APS intends to acquire,

but merely an example of a potential resource mix based on APS's current understanding of the market. The economics of a particular resource or technology will ultimately determine the extent to which any one technology is employed as part of the overall portfolio.

C. Renewable Generation

The design of this Plan is to provide sufficient flexibility to provide the best opportunity to meet or exceed the RES target at a reasonable cost. The Plan provides descriptions of the current projects under contract as well as the expected resource additions over the next five years.

i. Existing Renewable Generation

As shown in Exhibit 3B, APS is anticipating renewable generation capacity of 263 MW by the end of 2009. Of that capacity, 220 MW are from purchased power agreements ("PPA") for projects current operating or anticipated to be completed in 2009, 6 MW are from APS owned solar facilities, 25 MW are expected to come from a short-term addition, and 12 MW are estimated from the APS proposed Small Generation program discussed later in this Plan.

ii. Renewable Generation Procurement Plan and Process

The energy required to meet the APS targets and the anticipated demand for the Green Power rates[13] in each of the next five years is outlined in Exhibit 1. In general, two to five years is required from the initiation of an RFP to the point at which energy can flow into the APS system from a new renewable generation project. The majority of that time is required for development and construction. For example, projects selected from the 2007 Renewable RFP would be expected to result in renewable energy that would apply to the renewable resource target no sooner than 2009 and possibly as late as 2012.

In 2007, APS projected that it would need energy output from renewable resources in 2009 and beyond. Accordingly, APS implemented a competitive procurement process in 2007 to seeking additional renewable energy with commercial operation dates ranging from 2009 to 2012. The competitive procurement processes will continue to consist of, but not be limited to, the issuance of RFPs, negotiated bilateral supply contracts, and other competitive solicitations seeking long-term renewable resources. Implementing an effective competitive procurement process will ensure a fair and unbiased procedure that will efficiently incorporate a full range of renewable resources alternatives from the marketplace. APS expects to continue engaging the market and seeking cost effective projects over the next few years, including the issuance of another utility-scale renewable RFP in 2008.

In the evaluation of bids submitted during the competitive procurement process, analysis of proposals will include an analysis of: energy production; capacity value; deliverability; technical

[13] Green Power rate schedules GPS-1 and GPS-2 were approved by the Commission in Decision No. 69663. They were created to allow customers to purchase a portion of their energy usage from renewable resources. These purchases do not count toward RES targets.

characteristics; operational performance; reliability; efficiency; credit; and respondent experience. The procurement and project selection procedure employed by APS has been documented and certified by an independent auditor as required by the RES.[14]

This Plan attempts to fully acknowledge the reality that PPAs and project development methods will not necessarily conform to required delivery schedules and planned quantities. Renewable generation projects, like other generation projects, may fail to achieve scheduled commercial operation. APS also expects output from existing renewable projects to fluctuate from year to year. The primary tool used to manage these planning and output variances will be the use of banking of RECs. The initial renewable generation bank was established using RES eligible energy procured prior to the effective dates of the RES rules, or August 14, 2007. After that date, changes to the REC bank are only expected to come from withdrawals to meet compliance or deposits from excess generation in any given year. APS will use a first-in, first-out approach to track the REC bank balance. In other words, withdrawals will be made from the oldest vintages first and move to the next year when the oldest year has been exhausted.

iii. Identifying Renewable Generation Requirements

During the five years covered by this Plan, the renewable resource targets increase from 2.00% in 2009 to 4.00% in 2013. In the near-term, this Plan focuses on existing and planned renewable resource projects to meet those targets. This Plan also contemplates that new renewable generation will be contracted and developed during the five year period covered by this Plan. APS has based its program budget and energy procurement on several assumptions, which are discussed below. Details are competitively confidential and have been redacted. Those details are provided to Staff pursuant to an executed Confidentiality Agreement.

1. Costs of Renewable Generation

For purposes of resource and budget planning, the costs of renewable generation are based on the portion of the renewable energy cost which is above the market cost of comparable conventional generation.[15] For existing contracts, the percentage above APS's cost for comparable generation was established at the time the contract was signed and the percentage is applied to the total contract cost for the planning year. For targeted future contracts, the price is estimated based on existing renewable generation contracts, recent market experience, and general trends observed in renewable generation project development. These percentages for future contracts will be re-evaluated during subsequent five year planning periods. All renewable resource costs are described in terms of dollars per megawatt hour ("MWh") above APS's comparable conventional generation.

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[14] A.A.C. R14-2-1812.B.6 "...procedures for choosing Eligible Renewable Energy Resources and a certification from an independent auditor that those procedures are fair and unbiased and have been appropriately applied." Certification letters were filed as part of the RES Annual Compliance Report filed in Docket No. E-01345A-95-0491 on February 29, 2008.

[15] A.A.C. R14-2-1801.K defines this term.

The detailed cost assumptions used to develop the budget for procurement of these resources are included in Exhibits 3C and 3D. Because this information is competitively confidential, it will be provided to Staff pursuant to an executed Confidentiality Agreement. It should also be noted that the existing contracts referenced in Exhibits 3C and 3D are long-term commitments that are either already in place or nearly finalized at the date of this Plan.[16]

D. Small Generation Pilot Program

Traditionally, a small renewable generation project developer's best opportunity to execute an agreement with APS was by bidding into a RFP. While this process works well for large projects, APS recognizes that this can be an onerous process for a small system developer. Despite the fact that APS has selected projects of this size through the traditional RFP process, APS is exploring ways to streamline the process and is proposing to create a program that is more attuned to the needs of smaller projects.

APS is proposing a one year Small Generation Pilot Program for 2009 for projects that produce less than 35,000 MWh per year. Larger projects would be required to enter the formal RFP process. The program will be available to all RES eligible technologies and would be limited to total of 45,000 MWh per year. The 45,000 MWh maximum is further segregated into a 10,000 MWh for solar and 35,000 MWh for all other RES eligible projects.

As with all other generation contracts, the total cost of the contracts would be split, with the RES funding only applied to the above market portion. These cost estimates are provided in Exhibits 3C and 3D. 2009 was assumed to be a ramp-up year, with half of the annually expected production and cost. The selection and contracting process will also be streamlined to better accommodate smaller projects.

As previously stated, APS is proposing the Small Generation Program as a one year pilot for 2009 and has included the projected cost of the pilot in Exhibits 2 and 3 in this attachment. APS would report on the results of the pilot as part of the 2009 RES Compliance Report, which will be submitted no later April 1, 2010. APS will also determine at that time if continuing or expanding the pilot into a permanent program is appropriate.

E. Distributed Energy

APS recognizes that DE is an important component of the renewable energy goals of the RES, and, as part of this Plan, APS proposes a funding level it believes necessary for compliance each year to support the distributed generation program. APS recognizes that uncertainty exists with respect to the proposed incentive levels and the total number of RECs that they generate; however, in order to comply with the DE targets, APS believes the proposed funding level is necessary to accommodate required consumer demand for DE.

[16] The Company's request for approval of the Solana CSP PPA is currently pending at the ACC.

APS has requested a reset of the adjustor necessary to recover only the 2009 estimate for the DE program, as previously discussed. Increases in the adjustor will be required in future years for APS to meet the DE requirements in the RES. APS believes that adjusting the funding annually allows APS, together with the ACC, to implement a program with a clear understanding of program performance and costs without over collecting funds from customers in the near-term or compromising the overall resource goals of this Plan and the RES.

Commission Staff initiated the UCPP working group described in A.A.C. R14-2-1810 in June 2006, and APS participated in all of the working group efforts. The working group made significant progress towards the development of recommendations to Commission Staff, but a final report has yet to be completed. APS has used the approach developed by the UCPP working group for the Company's proposed DE incentive program. This working group made considerable progress towards identifying program workflows, technology sensitive incentive structures and levels, and technology specific requirements and limitations. The efforts of the working group provided APS with insight on the anticipated potential contributions from technologies not previously included in APS's DE programs. Planning models, implementation strategies, and budgeting for the DE program were all designed with specific consideration for the insight from the UCPP working group. In addition, APS relied on several years' experience with the Solar Partners Incentive Program and ongoing dialogue with many industry stakeholders.

i. Anticipated Distributed Energy Program Outcomes

As part of this Plan, APS developed a planning tool to help anticipate DE program outcomes, both from energy and budgetary perspectives. In developing the anticipated program outcomes, a number of assumptions about technologies and customer preferences were required. The assumptions included the anticipated number of projects by technology requesting incentives and the anticipated energy contribution from each DE project. Anticipated energy contribution was described by assumptions on average project size and average project production. The detailed assumptions were required for purposes of budget and planning; they are not intended to reflect allocations, funding caps, or preference for any one technology. The assumptions are detailed in Exhibit 4.

Incentives were drawn from the draft UCPP working group efforts and have been included in the APS Distributed Energy Administration Plan ("DEAP"). The DEAP is a separate document submitted in conjunction with the Implementation Plan in general compliance with A.C.C. R14-2-1810.B. The DEAP, generally described below, details different incentive types for use in the DE program. For planning purposes, assumptions about customer preference for the variety of incentive alternative were required. Planning assumptions are also detailed in Exhibit 4A.

APS's proposed DE budget, combined with the planning assumptions, results in specific outcomes. (Exhibits 4B and 4C). The actual results of program implementation are likely to differ from those anticipated by APS's planning efforts as customers learn more about the variety

of technologies and applications available as a result of APS's program marketing, advertising, and partnership development efforts.

Exhibit 4D details the total payment stream APS is proposing to commit to for production-based incentives over the 2009-2013 planning period. It should be noted that these are financial commitments APS has made or will make in attempting to meet or exceed compliance with the Distributed Energy targets. In any one year PBIs can be thought of as "less expensive" than the up-front incentives; however, as can be seen in Exhibit 4D, the annual and lifetime commitment grows by a material amount each year.

ii. Key Tenets of the Proposed Distributed Energy Administration Plan

APS's distributed energy program is detailed in the updated DEAP in Attachment B. While the DEAP is substantially the same as the version approved in Decision No. 70313, there have been some minor enhancements designed to improve clarity and customer service. Those enhancements are discussed in a following section. Below are several key tenets of APS's program as described in the proposed DEAP:

1. Administration

Project funding is not guaranteed until a reservation confirmation is received for each project from APS. To receive a reservation and an incentive, applicants must follow the established reservation, installation, and inspection procedures.

2. Equipment and Installation Requirements

Systems will be required to adhere to generally accepted industry standards, federal, state and local codes, all applicable regulatory requirements, and manufacturer recommendations for installation and operation. Systems must be installed by an Arizona licensed contractor holding an active certification for the technology being installed and conform to APS interconnection requirements, if applicable.

3. Incentives

Incentives are designed to defray some of the costs of a system designed to offset a typical load of a customer. Systems qualifying for DE incentives cannot qualify for other utility incentives.

> *Residential* – Customers for residential incentives can apply for a one-time payment based on the DE system's capacity or based on the first year estimated savings provided by the DE system, dependant on the technology application. This type of incentive is referred to as an Up-Front Incentive ("UFI").
>
> *Non-Residential* – Non-residential customers will either receive a UFI or a production incentive, which is paid over time. Projects receiving production-

based incentives ("PBI") are paid based on system energy output rather than on system capacity. Projects with a total incentive value of $75,000 or less (calculated as the present value of the total of incentive payments) will receive one-time capacity based incentives; all others will receive incentives based on production.

4. Market-Driven Projects

Projects that fall outside of the standard administrative, equipment, or incentive requirements for DEAP projects or projects that are solicited by APS to achieve specific program goals may be eligible for incentives as market-driven projects. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives.

5. Customer Self-Direct

As discussed in APS's approved Adjustment Schedule SDR[17], eligible customers are required to declare the amount of the self-directed funding requested by March 31st each year. These projects must be comparable to conforming projects in financial efficiency to be considered for incentives. The amount of funds allocated to customer self-directed projects will be disclosed in this Plan for the next program year. As noted in Attachment A, Exhibit 2, APS has not received any requests for self-direction to date.

6. Adjustments from previous DEAP

After beginning the process of implementing the DE incentive program that was approved by the Commission in Decision No. 70313 (April 28, 2008), APS discovered a number of minor issues that require a modification to the DEAP. These modifications are relatively immaterial, but are designed to improve customer service and eliminate any issues that might limit customer participation or satisfaction.

- As described in the letter to Docket No. E-01345A-07-0468 filed with the ACC on December 21, 2007, APS will not require disclosure of financing costs for inclusion in Total Project Costs but will make it optional. The incentive cap will therefore be calculated using only the disclosed project costs.
- APS has replaced the *PV Off-Angle & Shading Incentive Adjustment Chart* with the one shown as Exhibit 4 to the DEAP. This was based on feedback from several installers attempting to use the chart in the early stages of implementing the incentive program under the RES. Participants and installers found the chart confusing to use and punitive for standard installations in certain geographic areas. For instance, a standard installation in a more northern portion of APS service territory might have

[17] Adjustment Schedule SDR, Self-Directed Renewable Resources, was approved by the Commission in Decision No. 70313.

received a reduced incentive because the panel angle had to allow for snow runoff. APS believes these issues will be corrected with the new chart, but the intent of reducing incentives for sub-optimal installations remains.

- Portions of the metering and billing sections have been modified to reflect current APS practices of using telemetry to acquire system data. These changes reflect the need for the necessary billing data and provide participants with system production data for verification purposes. For production-based incentives, APS is planning to provide customers with the system production amounts quarterly. The customers or their representatives can then verify the data and request incentive payment.
- ~~APS will eliminate the 10-year payment term with the 20-year REC agreement option for production-based incentives. This option has caused a number of issues with participants financing arrangements that were not contemplated when the option was developed in the UCPP working group. It also resulted in a credit risk exposure that would have ultimately been funded by the RES. To eliminate these issues, APS chose to use incentives arrangements that would tie the payment term to the REC agreement term. As seen in Exhibit 1 of the DEAP, this still provides PBI participants with three incentive options.~~
- Any references to a third-party participating in the Credit Purchase Agreement have been removed. After a great deal of stakeholder involvement, APS has refined its Credit Purchase Agreement into a standard format that only APS and the participating customer are a party to. This change has simplified the reservation process for customers and eliminated issues some customers were having financing systems.
- Section 7, the Reservation Process Overview, has been rewritten to more accurately reflect the streamlined process currently in use. The new process flow was developed over the past several months and seems to have helped all stakeholders, including participants, installers, and APS, navigate the reservation process more smoothly.
- The proof of liability insurance requirement for installers has been removed because it is a redundant requirement. Having a valid Arizona Registrar of Contractors license already necessitates having liability insurance.
- Two minor equipment qualifications were eliminated because APS had no credible way to verify them and they were redundant. The first is that wind towers must be installed by individuals familiar with local geotechnical conditions. This requirement is not possible to verify and is duplicative with the general requirement that projects comply with all applicable regulations. The second is the requirement of a solar water heater manufacturer's specification sheet to verify the system size and collection type. This is being eliminated because it is duplicative of local code requirements.

- Because the request to establish the DE Review Panel was denied by the Commission in Decision No. 70313, APS has removed Section 10 of the DEAP.
- Section 6.9 on Default was changed to acknowledge that participants are subject to the default terms contained in the various Credit Purchase Agreements. Those agreements vary by type of incentive and, in some cases, by technology.
- After several discussions with installers, Section 4.2.9 for Residential Solar Thermal was added to acknowledge this combination of space heating/water heating systems as a separate technology with a separate incentive.
- Up-front incentives based on first year kWh savings were added for non-residential technologies Solar Space Cooling, Solar Water Heating/Space Heating, and Pool Heating. This was done because many of these projects would be less than the $75,000 PBI threshold and would be impractical to pay production-based incentives.
- While it is not explicitly addressed in the DEAP, APS would note that as reflected in the comments filed in Docket No. E-01345A-07-0468 on April 4, 2008, the DEAP does not preclude customers from entering into third party operating and ownership arrangements for distributed systems. In these cases APS will continue to pay incentives to the customer or authorized designee.

iii. Distributed Energy Incentive Budgets

The proposed DE incentive budget for the five year planning window is described in Exhibit 4B. The incentive budget allocation is designed to result in half of the distributed energy to be from residential installations and half from non-residential.[18] Annual increases in program budget are designed to accommodate both an increase in the DE energy target and to account for the increasing levels of commitment to PBIs, which are used for non-residential DE resources. The incentive matrices incorporated as part of the DEAP describe incentive reductions every two years of the program. Those planned reductions were designed by the UCPP working group in an attempt to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. Six specific allocations are described in Exhibit 2. They include: existing production-based contracts, wholesale contracts, residential up-front incentives, non-residential up-front incentives, new non-residential production-based incentives, and customer self-direct.

The DEAP describes potential funding for customer self-directed projects. As part of the DEAP, a budgetary earmark is required to fund projects meeting the criteria of customer self-directed projects. As of the March 31, 2008 deadline, APS had not received any requests for self-direction; therefore, no allocation was established.

[18] A.A.C. R14-2-1805.D.

As was previously described in this Plan, the annual funding level for DE incentives was established based on the estimates of the energy needed for compliance, anticipated consumer demand, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied to the next program year. To continue to be able to adapt to customer demand and market changes, APS would also request that it be allowed to continue the incentive budget flexibility it was granted in Decision No. 70313. In that Decision, APS was granted the flexibility to reallocate up to 20 percent of the incentive budget to match customer demand.

iv. Marketing, Advertising and Partnership Development

The marketing effort for 2009 will continue to build on the marketing activities of 2008 in order to continue advancing the same primary goals:

1. Create increased awareness of the APS Renewable Energy Incentive Program available to customers as well as increase understanding and participation among vendors and other stakeholders.
2. Deliver messaging that will motivate APS customers towards the adoption of renewable energy technologies.
3. Position the APS Renewable Energy Incentive Program as a choice customer can take advantage of to address the growing energy needs and environmental concerns that face Arizona.

The objectives of all actions under the marketing campaign are to motivate APS customers to become more aware of, and build a comfort level with, distributed renewable energy technology; to help them recognize the ability DE has to meet their individual energy goals as well as those of Arizona; and to help move them to action through taking advantage of available renewable energy incentives. To accomplish these objectives, the marketing campaign will bring together a combination of pointed and motivating messaging, identify critical program partners, motivate partnership development, drive community outreach, and employ an effective and convincing use of media, both placed and earned.

The marketing campaign will include a variety of important strategies and tactics to accomplish the program goals. These include:

- Continually identifying, evaluating and refining messages in order to overcome adoption barriers for residential customers, builders, and commercial customers.
- Continuation of a media campaign which includes mass media to raise visibility of renewable DE alternatives and motivate APS customers to move along the path of adopting those technologies.
- Customer education of DE through events, seminars and workshops.

- Creating strategic alliances that will increase the exposure of the APS DE message to various targeted audiences.
- Evaluation of the redesign of the APS website for the renewable energy incentive program. Updates will be ongoing based on customer and stakeholder feedback in order to keep the website a useful resource for customers, installers and other stakeholders.
- Creation of sales tools and marketing materials to support both residential and non-residential customer acquisition (such as for installers and home builders).

In developing a budget for the DE marketing campaign, APS consulted with its nationally recognized renewable resource consulting firm, reviewed available data for customer program marketing budgets among other states and utilities, and considered the level of anticipated effort to create consumer demand based on the breadth of available technologies and the proposed DE incentive budget. APS also incorporated what it learned during the course of its 2008 Implementation Plan after discussing its then proposed budget with various interested stakeholders. The proposed annual budget for 2009 to 2013 is detailed in Exhibit 2.

As done in 2008, APS will continue to consult with nationally recognized experts and consulting firms within the renewable energy market and local and regional stakeholders to refine our messaging and methods to reach customers. Modifications to our communications strategy will also be adapted to meet changing market conditions and as a result of key learnings made during our marketing activities.

F. Implementation and Administration

In developing both strategy and a budget for implementation of the RES, a logical separation was created between those elements required to support the renewable generation portion of the program and the DE portion of the program. Renewable generation involves expertise in utility scale renewable generation technologies, competitive procurement and evaluation processes, project siting, utility integration, transmission and distribution related issue, complex contract negotiations, and contract management. The DE program is a mass market program: it involves thousands of individual interactions requiring customer communication; interconnections; inspections; customer billing; and a sophisticated system to monitor REC production. Of course, certain resources are used to support both portions of the RES and they are characterized as such in the descriptions that follow.

i. Resources Required for the Renewable Generation Program

The renewable generation program requires subject-matter experts to identify those aspects of renewable generation procurement, engineering, and market analysis that are unique from those same areas in conventional energy operation, and to coordinate with the impacted operational areas of APS to seamlessly integrate renewable resource management into APS's standard business practices. The knowledge-area experts comprising the renewable generation

administrative team include the personnel necessary to manage the program. Program management includes establishing policies and procedures, procuring renewable generation, handling contract administration and construction management, managing benchmarking and resource integration studies, and performing program monitoring and compliance reporting.

There are many APS personnel who support the program, but are not part of the administrative team. Those employees are not included in the program costs; they are considered "non-incremental" because they are necessary to support the general operations of the Company and have responsibilities that are not directly related to the renewable generation program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, contract settlement, transmission planning, power and gas marketing, and resource planning.

ii. Resources Required for the Distributed Energy Program

The implementation strategy for the DE program was developed with the following targets:

- Developing an accurate, efficient and customer friendly process.
- Integrating the program processes into the general business operations.
- Creating a scalable process that responds to adjustments in the volume of program participation.
- Supporting the strategic marketing efforts of the program.

To accomplish these objectives requires a considerable investment in program implementation. The DE program requires a substantial number of individual transactions and each transaction impacts numerous parts of APS business infrastructure. As such, implementation costs for the DE program are significant.

1. Program Resources

The implementation team is comprised of the personnel necessary to execute the DE incentive program. This includes the fixed payroll personnel who are required to administer the reservation and interconnection applications and agreements, review system design for conformance with DEAP and interconnection requirements, process incentive payments, answer customer and installer questions about the program, and perform field inspections. Also included are the variable payroll personnel required to tag utility equipment to identify potential backfeed sources, and provide billing support to partial requirements customers, as well as the personnel required to manage the execution of the program, develop and execute the marketing and advertising programs, and provide ongoing program monitoring and compliance reporting. The number of implementation team members required is proportional to the number of program participants.

There are also resources supporting the program that are neither part of the administrative nor the implementation teams. These personnel are considered "non-incremental" and are required to support the general operations of the utility and have responsibilities that are not directly related

to the distributed program. This includes, but is not limited to, regulation and pricing, accounting, legal, contract administration, and meter reading.

2. Material Costs

Measuring the actual number of kWh returned to the grid by DE resources requires the use of a bi-directional meter rather than a standard utility meter. The incremental cost charged to the RES is the difference in cost between the bi-directional meter and the standard utility meter.

For compliance verification and program evaluation purposes, the DEAP proposes to capture monthly meter reads for all DE systems generating electricity. APS believes that customers will also be interested in the ability to track total kWh generated by their system. To facilitate both the meter read capture requirement and to help customers track the kWh production by the DE system, APS plans to install and read the system meter for all participants in the program. The only costs charged to the RES are those costs associated with providing the second meter to record system production.

There are also incidental material costs associated with the program, including, but not limited to, system locks, tags, inspection tools and transportation for inspection personnel.

APS may also install an interval recording meter on a sampling of sites that will be used by load research to conduct studies on the coincidence of solar output vs. APS system load. The only material cost charged to the Program will be the incremental costs of the interval recording meter.

3. Technological Improvements Required

The process flow to effectively and efficiently continue implementing the DE incentive program requires integration with existing systems, including customer billing, the APS.com website, program and operations databases, accounting systems, and dispatch and scheduling tools. This investment is required to ensure integrity and support the scale of the program as it is described in the Plan. APS will continue proposing relatively small annual amounts over several years rather than a large lump sum. This should limit the impact to customers, while still allowing APS to continue progressing on the technology improvements. Depending on the level of funding available, the tools to support the distributed incentive program that APS plans to develop and integrate into existing systems include:

- Automated customer billing: the readings from both the billing and system production meters will be integrated into the APS billing system. Both billing and production data will appear on customer bills.
- Inspection scheduling: the process of scheduling and managing inspecting hundreds, if not thousands, of installations per year would be automated. This should improve customer service and ensure that commercial operation of grid-tied systems begins in a timely manner.

- Electronic forms: this would allow customers to complete and submit forms electronically, including electronic signature. Electronic forms would shorten incentive payment processing times by eliminating mailing delays. Electronic document retention would also reduce administrative work for APS.
- Accounting integration: this project would integrate the accounts payable system with the incentive program database to improve the timeliness of payment processing and reduce corrections due to manual processing.

G. Renewable Research, Development, Commercialization, & Integration

APS proposes a budget allocation for research, development, commercialization, and integration ("RDCI") of renewable resources. The purpose of this budget allocation is to enhance and accelerate the development, deployment, commercialization, and utilization of renewable resources for the benefit of APS customers. For 2009, APS proposes to specifically allocate a minimum of $500,000 of the total RDCI budget of $1.5 million for research and development aimed at advancing the role of renewable energy in APS's resource mix. *The allocation of $500,000 will be spent in the areas of solar thermal research, distribution level battery storage, integration of distributed technologies with Smart Grid, and/or compressed air energy storage for renewable energy.*

Activities undertaken as part of this program may be supported either by APS solely, or in partnership with other organizations and entities including private industry, public research institutions, and government laboratories. In planning and funding these activities, APS intends to take full advantage of opportunities to leverage state and federal research and development efforts and supporting funding opportunities. Specifically, APS will strive to increase coordination efforts with the U.S. Department of Energy ("DOE"), the Arizona Department of Commerce Energy Office, and national laboratories to realize greater investment of federal research funds in Arizona and specifically in APS service territory. APS also intends to coordinate closely with Arizona universities to better utilize those resources and leverage existing efforts by those institutions.

APS will prioritize research and development and commercialization and integration to help meet the RES goals for renewable resources. As part of APS's long standing commitment to renewable resources, several commercialization and integration studies are already underway. Those studies and ongoing experience with renewable resources will help identify additional study subjects necessary to achieve program goals. Those studies include:

- Distributed Energy Cost/Benefit Analysis — APS is studying the cost and benefits of large quantities of distributed energy in the APS service territory. The topics being investigated are the cost and benefit of capacity/energy, delivery system impact, transmission system and other potential generation impacts (i.e. integration). As noted in ACC Decision No. 70130 this study is due to be completed by February 1, 2009.

- Photovoltaic Performance Study — APS is collecting data and intends to determine the expected production from photovoltaic systems that have received incentives. The data may be used to assist with the Distributed Energy Cost/Benefit Analysis and may also be used to adjust incentives in the future.

In determining whether to fund new RDCI projects, APS will consider three key functional areas:

- Renewable technologies and available resources — This includes studies of the attributes, characteristics, and costs of renewable energy technologies and the availability and viability of renewable energy resources in the state of Arizona and the western United States. Specifically, APS believes it is valuable to explore renewable storage technologies, the forecasting of solar and wind resources, evaluate attributes specific to solar sites for development, geothermal resource opportunities, and investigate and field monitor small scale hydropower opportunities. Research and development into new renewable technologies and improvements on existing technologies would also be included in this functional area.

- Transmission and System Integration — These studies would be designed to provide APS with a better understanding of the operational impacts, costs of integration, and for the identification of opportunities with renewable energy resources in the APS generation, transmission and distribution systems. APS recognizes the critical importance of transmission in the success of the expansion of renewable generation. Any significant increase in renewable generation must be integrated into the long-term planning for transmission to be successful.

- Distribution System — These studies will examine and build upon the work being completed in the distributed energy impacts and valuation study referenced above Specific areas of study would include impacts on the general distribution system, design and construction, operations and maintenance, safety, power quality, and load forecasting.

H. Distributed Public Assistance Program

APS proposes a budget of $300,000 to create distributed programs to meet the unique needs of our low income, school, non-profit, and governmental customers. Because these customers may have limited financial means and relatively low or non-existent taxable income to offset, the standard incentive program is not likely to tip the scale in favor of choosing a renewable energy system for many of those customers. While the specifics and depth of the Program would depend on the level of funding approved by the Commission there are a number of concepts APS would like to explore with stakeholders, community leaders, and organizations including:

- Larger incentives. Because many of these customers have little or no tax liability, a standard incentive leaves them paying a larger portion of the total cost of installing renewable systems than someone who could take advantage of tax credits. Larger than standard incentives and increased incentive caps may be an appropriate way to level the playing field.
- Contributions. In limited instances APS may provide for the installation of systems from some of the less expensive and lesser known technologies, such as solar water heating and daylighting.
- Administrative and technical requirements. To address the unique and lengthy approval processes most schools and governmental agencies use, APS may be able to extend the reservation timelines to meet the needs of those groups. APS will also determine if there are contracting terms and conditions that could be modified to assist all low income, school, non-profit, and governmental customers.

4. COSTS OF PROGRAM IMPLEMENTATION

The cost of the APS Implementation Plan is comprised of three key cost segments, renewable generation, distributed energy, and RDCI. A summary of the costs of those segments and the major components for each segment is included in Exhibit 2. APS currently estimates the cost to comply with the RES to range between $78.4 million in 2009 to $113.7 million in 2013, with a 5 year total of $505.2 million and a peak year in 2012 of $139.4. The annual increases are driven mainly by the annually increasing energy targets. As noted in Exhibit 2, APS would anticipate that some funds collected in 2008 may not be spent or committed and will be available in 2009. At the time of this filing, APS cannot accurately predict that amount. The Company will provide an estimate of that information by October 1, 2008, or before the date of the Open Meeting to adopt this Implementation Plan, whichever is earlier.

RES funding is intended to cover the cost of utility scale renewable generation in excess of the cost of conventional resource alternatives, incentive payments for distributed energy resources, marketing expenses, and program implementation and administration costs. The costs for renewable generation are based on APS's most current insights into that market. The costs for distributed energy incentives and the program budget are based on incentives developed as part of the Commission Staff's working group and APS's best estimations of market uptake for the various technologies available to consumers.

At this time, APS is requesting adjustor funding of $72.4 million for 2009 (the current RES adjustor would generate approximately $30 million on an annualized basis). The requested adjustor amount, along with the $6 million already included in base rates, would total the $78.4 million of funding needed to meet the requirement. APS intends to request additional funding in each successive year for the following calendar year's estimated cost. In other words, in 2009 APS will request funding for the 2010 calendar year and so on. The estimates for years 2010 to 2013 contained in Exhibit 2 would be updated each year to determine the necessary level of funding from customers.

5. ADDITIONAL DISTRIBUTED ENERGY ANALYSIS

APS recognizes that the compliance plan involves a significant financial investment for its customers and that the Commission, ACC Staff, and stakeholders have shown an interest in looking at ways to balance the financial impacts to customers with market dynamics and the RES requirements. This was evidenced by the fact that Staff created two options in the 2008 Implementation Plan process that received considerable discussion in the Open Meeting on April 9, 2008. In response to that discussion APS has prepared two sensitivities for distributed energy designed to reduce the near-term program costs but continue advancing the distributed markets. These sensitivities do not impact renewable generation or APS's expectation of meeting the overall RES energy targets during the forecast period. A detailed comparison of the compliance plan and two additional sensitivities is included in this Plan as Table 1. APS will supply Staff and interest stakeholders with workpapers providing additional detail for these analyses.

A. Current Funding Analysis

In developing the Current Funding analysis APS forecasted the amount of revenues it would receive given the current RES tariff level then projected distributed energy results with three goals in mind:

1. Maximize the amount of distributed energy to be acquired
2. Continue to grow each segment of the distributed market from current projected participation levels
3. Continue operating and implementing the overall RES Program for an additional year at current funding levels

In preparing the analysis APS chose to adjust the residential/non-residential energy split from the requisite 50/50 level with each of the three goals above as limiting factors. For example, APS reduced the projected ratio from the residential market, but not below currently anticipated incentive spending levels for 2008. As can be seen in Table 1, the incentive levels provided for in this sensitivity compare favorably to recent history and current year expectations. In 2007 APS budgeted $10 million for distributed incentives. $3.5 million of that went unspent and was rolled into 2008. The analysis also projects achieving approximately 80% of the total distributed energy target, with a ratio of 25% residential and 75% non-residential, and a distributed incentive and contract budget that is one-third of the compliance plan budget in the first year. Because distributed implementation costs are a function of the number of installations completed by program participants, the installations achievable with current funding would be expected to be approximately one-third of the compliance plan as well.

There are two issues that are important to note with this analysis. The first is that is relies on non-residential production-based incentives even more heavily than the compliance plan. While this type of incentive does reduce cost in the early years of a program, the long-term cost for distributed incentives is still high. It is comparable to a consumer reducing the up-front cost of a

large purchase such as an auto by financing it over several years. The second issue is that this analysis assumes that two portions of the RES Rules would be waived. Because APS adjusted the even split between residential and non-residential energy[19] and does not project to meet the total distributed energy requirement[20] with this sensitivity, waivers on these two requirements would be required.

B. Alternative Funding Analysis

In developing the Alternative Funding analysis APS projected the distributed energy results with four goals in mind:

1. Reach the total distributed energy requirement
2. Continue or grow each segment of the distributed market from current participation levels
3. Set the projected energy produced by the residential market no lower than 25%
4. Significantly reduce the funding requirements of the compliance plan

In preparing the analysis APS chose again to adjust the residential/non-residential energy split with each of the goals above as limiting factors. For example, APS reduced the projected ratio from the residential market, but not below currently anticipated incentive spending levels or 25% of the total distributed energy requirement. As can be seen in Table 1, the incentive levels provided for in this sensitivity are greater than those approved in the 2008 Implementation Plan, but materially lower than the comparable 2009 compliance plan. The analysis also projects reaching the total distributed energy target, with a ratio of 25% residential and 75% non-residential, and a distributed incentive and contract budget that is less than half of the compliance plan incentive and contract budget in the first year. With the reduced number of installations in this analysis, distributed implementation costs are once again notably lower than the compliance plan as well.

The notable items in this sensitivity are very similar to the previous analysis. APS again relied heavily on the use of non-residential production based incentives and applied the use of a waiver to the even split between residential and non-residential energy[21] in the RES Rules.

6. CONCLUSION

As required by the RES rules[22] APS has filed its proposed Implementation Plan and RES Adjustor Rate Schedule for the five-year period 2009-2013. As part of this Implementation Plan APS has proposed two new programs for 2009. The Small Generation Pilot Program is designed to simplify the process for small renewable generators to interact with APS when proposing and developing new projects and the Distributed Public Assistance Program was created to begin

[19] A.A.C. R14-2-1805.D.
[20] A.A.C. R14-2-1805.B.
[21] A.A.C. R14-2-1805.D.
[22] A.A.C. R14-2-1801, *et. seq.*

addressing some of the unique needs of our low income, school, non-profit, and governmental customers.

APS has also provided two additional analyses on distributed energy that may provide the Commission and Staff useful information when evaluating APS's proposed plan. Both of the analyses seek to adjust different variables of the distributed program with the goal of reducing overall program cost and continuing to grow markets from their current levels. APS is hopeful that this will be found helpful and assist the Commission in the implementation plan review and approval.

ATTACHMENT A

APS RES Implementation Plan 2009 to 2013
(Amended based on Decision No. 70654)

Table 1: Comparison of APS Compliance Plan with Additional Analyses

	APS Compliance Plan	Current Funding Analysis	Alternative Funding Analysis
Goals for the analysis	▪ Compliance with all portions of RES Rules ▪ Minimize funding requirement as much as possible	▪ Continue operating at current funding in 2009 ▪ Grow each segment of the market from current projected participation levels ▪ Maximize total distributed energy produced	▪ Compliance with Total DE requirement ▪ Continue or grow each segment of the market from current funding levels ▪ Set the residential DE requirement no lower than 25% of the Total ▪ Reduce funding requirements from Compliance
Waiver Assumptions	▪ None	▪ Res/Non-Res Ratio ▪ Total DE Energy Requirement	▪ Res/Non-Res Ratio
2009 Projected DE Outcome (Assumes sufficient customer demand)	▪ Compliance with Total DE requirement ▪ 50% Res/50% Non-res ratio ▪ 10% wholesale (applied to Non-res) ▪ 8,919 residential installations ▪ 296 non-residential installations	▪ 80% of Total DE requirement ▪ Funding level results in 25% Res/75% Non-res ratio ▪ 10% wholesale (applied to Non-res) ▪ 2,058 residential installations ▪ 417 non-residential installations	▪ Compliance with Total DE requirement ▪ 25% Res/75% Non-res ratio ▪ 10% wholesale (applied to Non-res) ▪ 3,383 residential installations ▪ 610 non-residential installations
2009 DE Contract and Incentive Budget ($MM)	▪ Res UFI $49.3 ▪ Non-Res UFI $1.3 ▪ New Non-Res PBI $1.1 [1] ▪ Existing Non-Res PBI $3.3 ▪ Wholesale $0.2 ▪ Total $55.2	▪ Res UFI $11.4 ▪ Non-Res UFI $1.8 ▪ New Non-Res PBI $1.5 [1] ▪ Existing Non-Res PBI $3.3 ▪ Wholesale $0.2 ▪ Total $18.2	▪ Res UFI $18.7 ▪ Non-Res UFI $2.6 ▪ New Non-Res PBI $2.2 [1] ▪ Existing Non-Res PBI $3.3 ▪ Wholesale $0.2 ▪ Total $27.0
2009 Total RES Budget ($MM)	▪ Renewable Generation $10.4 ▪ DE Contracts & Incentives $55.2 ▪ Non-energy costs $11.6 ▪ Public Assistance $0.3 ▪ RDCI $1.5 ▪ Green Rate Revenue ($0.6) ▪ Total $78.4	▪ Renewable Generation $10.4 ▪ DE Contracts & Incentives $18.2 ▪ Non-energy costs $7.5 ▪ Public Assistance $0.3 ▪ RDCI $1.2 ▪ Green Rate Revenue ($0.6) ▪ Total $37.0	▪ Renewable Generation $10.4 ▪ DE Contracts & Incentives $27.0 ▪ Non-energy costs $8.6 ▪ Public Assistance $0.3 ▪ RDCI $1.5 ▪ Green Rate Revenue ($0.6) ▪ Total $47.2
2009 RES Adjustor Rate Schedule & Monthly Caps	▪ $0.007937 per kWh ▪ Residential Cap $3.17 ▪ Non-residential Cap $117.93 ▪ Non-residential over 3 MW Cap $353.78	▪ $0.003288 per kWh ▪ Residential Cap $1.32 ▪ Non-residential Cap $48.84 ▪ Non-residential over 3 MW Cap $146.53	▪ $0.004512 per kWh ▪ Residential Cap $1.80 ▪ Non-residential Cap $67.04 ▪ Non-residential over 3 MW Cap $201.13

[1] This is the expected incentive payments for 2009 assuming a half-year production. Annual commitment in future years would be two times this amount.

APS Renewable Energy Standard
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Exhibit 1

APS RES Program Summary

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Exhibit 1 – APS RES Program Summary

Exhibit 1 outlines the annual APS renewable energy targets by renewable generation and distributed energy, anticipated needs, and summarizes the proposed budget.

Exhibit 1: APS RES Program Summary

APS RES Targets	2009	2010	2011	2012	2013
APS Estimated Retail Sales (MWh)	29,531,727	30,085,484	30,961,264	31,821,962	32,709,839
APS RES Target - % of Retail Sales	2.00%	2.50%	3.00%	3.50%	4.00%
APS Total RES Target (MWh)	**590,635**	**752,137**	**928,838**	**1,113,769**	**1,308,394**
Renewable Generation % of RES Target	85%	80%	75%	70%	70%
RES Generation Target	**502,040**	**601,710**	**696,629**	**779,638**	**915,876**
Distributed Energy % of RES Target	15%	20%	25%	30%	30%
Distributed Energy Target	**88,595**	**150,427**	**232,210**	**334,131**	**392,518**

Renewable Generation (MWh)	2009	2010	2011	2012	2013
Existing/Planned Generation Owned/Contracted	880,175	861,844	1,089,112	1,758,499	2,036,387
RES Generation Target	502,040	601,710	696,629	779,638	915,876
Projected Green Power Sales [1]	59,063	60,171	61,923	63,644	65,420
Energy Applied To/(Withdrawn From) APS Bank for RES	**319,072**	**199,963**	**330,560**	**915,217**	**1,055,091**

Distributed Energy (MWh)	2009	2010	2011	2012	2013
Distributed Energy Target	88,595	150,427	232,210	334,131	392,518
Estimated Existing/Planned Distributed Energy [2]	26,033	88,595	150,427	232,210	334,131
Incremental Energy To Be Acquired	**62,562**	**61,832**	**81,783**	**101,921**	**58,387**

APS RES Budget Summary ($ MM)	2009	2010	2011	2012	2013
Total Renewable Generation	$ 11.4	$ 11.7	$ 20.0	$ 45.3	$ 52.7
Total Distributed Energy	$ 65.5	$ 63.8	$ 75.2	$ 92.6	$ 59.5
RDCI	$ 1.5	$ 1.5	$ 1.5	$ 1.5	$ 1.5
Total RES Program Budget	**$ 78.4**	**$ 77.0**	**$ 96.7**	**$ 139.4**	**$ 113.7**

Notes:

(1) The Green Power (Rate Schedules GPS-1, GPS-2, Solar-3) is included only for procurement purposes. APS intends to procure enough energy to achieve RES compliance and Green Power purchased by customers. The Green Power sold to customers will not be counted towards RES compliance and the cost of those resources is not included in the Renewable Generation budget.

(2) For 2009 the Estimated Existing Distributed Energy is the projected DE at the end of 2008 based on the best available information at the time of the filing. For the remaining years it is assumed APS achieves full compliance with the DE target.

APS Renewable Energy Standard
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Exhibit 2

RES Budget Summary

APS Renewable Energy Standard
Implementation Plan for 2009-2013
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Exhibit 2 – APS RES Budget Summary

Exhibit 2 details the APS RES Program proposed budget for 2009 to 2013 by line item for both Renewable Generation and Distributed Energy.

Exhibit 2: APS RES Budget Summary ($ MM)

	2009	2010	2011	2012	2013	2009-2013 Total
Renewable Generation:						
Energy Purchase	$ 10.4	$ 10.7	$ 19.0	$ 44.2	$ 51.7	$ 136.0
Administration	$ 0.8	$ 0.8	$ 0.8	$ 0.8	$ 0.8	$ 4.0
Implementation	$ 0.8	$ 0.8	$ 0.8	$ 0.9	$ 0.9	$ 4.2
Renewable Generation - Subtotal	**$ 12.0**	**$ 12.3**	**$ 20.6**	**$ 45.9**	**$ 53.4**	**$ 144.2**
Estimated Green Power Revenue Credit	$ (0.6)	$ (0.6)	$ (0.6)	$ (0.6)	$ (0.7)	$ (3.1)
Renewable Generation - RES	**$ 11.4**	**$ 11.7**	**$ 20.0**	**$ 45.3**	**$ 52.7**	**$ 141.1**
Distributed Energy:						
Contracts:						
Existing Production Based Contracts	$ 3.3	$ 5.4	$ 8.1	$ 11.3	$ 15.2	$ 43.3
Wholesale [1]	$ 0.2	$ 0.4	$ 0.6	$ 0.9	$ 1.0	$ 3.1
Total Contracts	$ 3.5	$ 5.8	$ 8.7	$ 12.2	$ 16.2	$ 46.4
Incentives:						
Residential Up-front	$ 49.3	$ 44.9	$ 53.5	$ 66.6	$ 32.5	$ 246.8
Non-Residential Up-front	$ 1.3	$ 1.6	$ 1.9	$ 2.3	$ 1.1	$ 8.2
Non-Residential Production Based [2]	$ 1.1	$ 1.3	$ 1.6	$ 2.0	$ 1.0	$ 7.0
Customer Self-Directed [3]	$ -	$ -	$ -	$ -	$ -	$ -
Total Incentives	$ 51.7	$ 47.8	$ 57.0	$ 70.9	$ 34.6	$ 262.0
Public Assistance Program	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 0.3	$ 1.5
Administration	$ 1.2	$ 1.3	$ 1.3	$ 1.3	$ 1.4	$ 6.5
Implementation	$ 2.8	$ 2.8	$ 3.2	$ 3.6	$ 3.0	$ 15.4
Information Technology	$ 0.6	$ 0.6	$ 0.1	$ 0.1	$ 0.1	$ 1.5
Marketing & Outreach	$ 5.4	$ 5.2	$ 4.6	$ 4.2	$ 3.9	$ 23.3
Distributed Energy - Subtotal	**$ 65.5**	**$ 63.8**	**$ 75.2**	**$ 92.6**	**$ 59.5**	**$ 356.6**
Research, Development, Commercialization, & Integration	**$ 1.5**	**$ 1.5**	**$ 1.5**	**$ 1.5**	**$ 1.5**	**$ 7.5**
2008 Estimated Rollover [4]						$ -
TOTAL	**$ 78.4**	**$ 77.0**	**$ 96.7**	**$ 139.4**	**$ 113.7**	**$ 505.2**

Notes:

(1) This line item is made up of a project (Snowflake White Mountain Power) that is split between Renewable Generation and Distributed Energy. The split is based on the amount of the wholesale component in a given year.

(2) As can be seen in Exhibit 4D, this is only the portion of the new PBI incentives that would be expected to be paid in a given year assuming a half year convention. The annual liability after the first partial year is twice what is shown on this line.

(3) As discussed in the Implementation Plan no customers have requested self-direction and therefore no allocation has been made.

(4) The Estimated Rollover cannot be accurately calculated at the time of the July 1 filing. APS will update the amount by October 1 or the date of the Open Meeting if sooner.

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Exhibit 3

APS Renewable Generation

APS Renewable Energy Standard
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Exhibit 3 – APS Renewable Energy Projects and Estimated Cost

Exhibit 3 provides details of the APS renewable energy program. The following sections are included.

1. Expected energy contribution from existing and planned renewable generation.
2. Capacity for the existing and planned renewable generation.
3. Estimated cost per MWh above comparable conventional generation for existing contracts and planned projects.
4. Estimated total annual cost above comparable conventional generation for each of the existing and planned projects.

Exhibit 3A: APS Existing and Planned Generation (MWh)

	2009	2010	2011	2012	2013	2009-2013 Total
Existing Contracts:						
Solar:						
APS-Owned PV	10,276	10,276	10,276	10,276	10,276	51,380
Saguaro CSP (APS-Owned)	2,015	2,015	2,015	2,015	2,015	10,075
Solana CSP	-	-	223,770	903,349	903,349	2,030,468
Total Solar	12,291	12,291	236,061	915,640	915,640	2,091,923
Wind:						
Aragonne Mesa	269,239	269,239	269,239	269,239	269,239	1,346,195
High Lonesome	173,267	299,592	299,592	299,592	299,592	1,371,635
Total Wind	442,506	568,831	568,831	568,831	568,831	2,717,830
Geothermal:						
CE Turbo	78,174	78,174	78,174	78,174	78,174	390,870
Total Geothermal	78,174	78,174	78,174	78,174	78,174	390,870
Biomass/Biogas:						
27th Ave Landfill	12,297	21,080	21,080	21,080	21,080	96,617
Snowflake White Mountain Power [1]	105,458	99,275	91,097	80,905	39,588	416,323
Skunk Creek Landfill	-	16,346	28,022	28,022	28,022	100,412
City of Glendale Landfill	6,949	20,847	20,847	20,847	20,847	90,337
Total Biomass/Biogas	124,704	157,548	161,046	150,854	109,537	703,689
Total Energy - Contracted Projects	**657,675**	**816,844**	**1,044,112**	**1,713,499**	**1,672,182**	**5,904,312**
Targeted Additions:						
Project 1 Geothermal [2]	200,000	-	-	-	-	200,000
Project 2 Solar [2]	-	-	-	-	319,205	319,205
Small Generation-Solar [3]	5,000	10,000	10,000	10,000	10,000	45,000
Small Generation-All Other [3]	17,500	35,000	35,000	35,000	35,000	157,500
Total Energy - Targeted Additions	**222,500**	**45,000**	**45,000**	**45,000**	**364,205**	**721,705**
Total Generation	**880,175**	**861,844**	**1,089,112**	**1,758,499**	**2,036,387**	**6,626,017**

Notes:

(1) As noted in Exhibit 2, this project is split between Renewable Generation and Distributed Energy. As the DE MWh requirement increases, the amount shown here as allocated to RG decreases.

(2) Actual technology, capacity, energy and cost may vary depending on the results of the procurement effort.

(3) Aggregate of all prospective projects for this category.

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Exhibit 3B: APS Existing and Planned Generation Capacity (MW)

	2009	2010	2011	2012	2013
Existing Contracts:					
Solar:					
APS-Owned PV	5	5	5	5	5
Saguaro CSP (APS-Owned)	1	1	1	1	1
Solana CSP	-	-	283	283	283
Total Solar	6	6	289	289	289
Wind:					
Aragonne Mesa	90	90	90	90	90
High Lonesome	100	100	100	100	100
Total Wind	190	190	190	190	190
Geothermal:					
CE Turbo	10	10	10	10	10
Total Geothermal	10	10	10	10	10
Biomass/Biogas:					
27th Ave Landfill	3	3	3	3	3
Snowflake White Mountain Power	15	15	15	15	10
Skunk Creek Landfill	-	3	3	3	3
City of Glendale Landfill	3	3	3	3	3
Total Biomass/Biogas	21	24	24	24	19
Total Energy - Contracted Projects	**227**	**230**	**513**	**513**	**508**
Targeted Additions:					
Project 1 Geothermal [1]	25	-	-	-	-
Project 2 Solar [1]	-	-	-	-	100
Small Generation-Solar [2]	6	6	6	6	6
Small Generation-All Other [2]	6	6	6	6	6
Total Energy - Targeted Additions	**37**	**12**	**12**	**12**	**112**
Total Generation	**264**	**242**	**525**	**525**	**620**

Notes:

(1) Actual technology, capacity, energy and cost may vary depending on the results of the procurement effort.

(2) Capacity will be the aggregate of all prospective projects for this category and an estimate only at this time.

Exhibit 3C: APS Cost Above Conventional Generation ($ MM)

	2009	2010	2011	2012	2013	2009-2013 Total
Existing Contracts:						
Solar:						
APS-Owned PV [1]	n/a	n/a	n/a	n/a	n/a	n/a
Saguaro CSP (APS-Owned) [1]	n/a	n/a	n/a	n/a	n/a	n/a
Solana CSP						
Total Solar						
Wind:						
Aragonne Mesa						
High Lonesome						
Total Wind						
Geothermal:						
CE Turbo						
Total Geothermal						
Biomass/Biogas:						
27th Ave Landfill						
Snowflake White Mountain Power [2]						
Skunk Creek Landfill						
City of Glendale Landfill						
Total Biomass/Biogas						
Total Energy - Contracted Projects						
Targeted Additions:						
Project 1 Geothermal [3]						
Project 2 Solar [3]						
Small Generation-Solar [4]	$ 0.2	$ 0.5	$ 0.5	$ 0.5	$ 0.5	$ 2.2
Small Generation-All Other [4]	$ 0.4	$ 0.7	$ 0.7	$ 0.8	$ 0.8	$ 3.4
Total Energy - Targeted Additions						
Total Generation	**$ 10.4**	**$ 10.7**	**$ 19.0**	**$ 44.2**	**$ 51.7**	**$ 136.0**

Notes:

(1) Project is APS owned and was funded by customers under the EPS. There is no recurring contract cost to be funded by the RES.

(2) As noted in Exhibit 2, this project is split between Renewable Generation and Distributed Energy. As the DE MWh requirement increases, the amount shown here as allocated to RG decreases.

(3) Actual technology, capacity, energy and cost may vary depending on the results of the procurement effort.

(4) Aggregate of all prospective projects for this category.

Exhibit 3D: APS Cost per MWh Above Conventional Generation ($/MWh)

	2009	2010	2011	2012	2013
Existing Contracts:					
Solar:					
APS-Owned PV	n/a	n/a	n/a	n/a	n/a
Saguaro CSP (APS-Owned)	n/a	n/a	n/a	n/a	n/a
Solana CSP					
Total Solar					
Wind:					
Aragonne Mesa					
High Lonesome					
Total Wind					
Geothermal:					
CE Turbo					
Total Geothermal					
Biomass/Biogas:					
27th Ave Landfill					
Snowflake White Mountain Power					
Skunk Creek Landfill					
City of Glendale Landfill					
Total Biomass/Biogas					
Targeted Additions:					
Project 1 Geothermal [1]					
Project 2 Solar [1]					
Small Generation-Solar [2]	$ 40.00	$ 50.00	$ 50.00	$ 50.00	$ 50.00
Small Generation-All Other [2]	$ 22.86	$ 20.00	$ 20.00	$ 22.86	$ 22.86

Notes:

(1) Actual technology, capacity, energy and cost may vary depending on the results of the procurement effort.

(2) Aggregate of all prospective projects for this category.

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Exhibit 4

APS Distributed Energy

Annual Budget
&
Projected Program Outcomes

APS Renewable Energy Standard
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Exhibit 4 - APS Distributed Energy Annual Budget & Projected Program Outcomes

Exhibit 4 details the annual budget and projected program of the APS DE program. The program outcomes are driven by the assumptions detailed in Exhibit 4. While the results included in the exhibit are the best estimates provided by APS, the actual results will likely vary based on customer participation, selection of specific technologies, and actual average project size.

The following documents are provided in this exhibit.

1. Customer participation assumptions used to estimate the program energy and capacity contribution.
2. DE program budget and allocations.
3. The projected program outcomes by energy, capacity, and number of installations.
4. The projected program results by technology.
5. The estimated annual PBI commitment through 2013.

APS Distributed Energy Program Assumptions and Planning Inputs
Exhibit 4a

	Residential or Non-Residential	Resource Type	Average Size (kW)	Average Energy (kWh/Year)	Contribution (%) 2009	2010	2011	2012	2013	Percent UFI (%)	PBI - 10/10 (%)	PBI - 15/15 (%)	PBI - 10/20 (%)	PBI - 20/20 (%)
Residential														
Residential's contribution to total DE energy requirement					**50%**	**50%**	**50%**	**50%**	**50%**					
					Project type's contribution to total Residential energy requirement									
SMALL WIND Residential (off-grid)	Residential	Wind	4.5	9,855	0.5%	0.5%	0.5%	0.5%	0.5%	100%	0%	0%	0%	0%
SMALL WIND Residential (grid-tied)	Residential	Wind	4.5	9,855	2.0%	2.0%	2.0%	2.0%	2.0%	100%	0%	0%	0%	0%
PV RESIDENTIAL (grid-tied)	Residential	Solar PV	3	4,730	60.0%	60.0%	60.0%	60.0%	60.0%	100%	0%	0%	0%	0%
PV RESIDENTIAL (off-grid)	Residential	Solar PV	2	3,154	0.5%	0.5%	0.5%	0.5%	0.5%	100%	0%	0%	0%	0%
SOLAR THERMAL/WATER HEATING (1)	Residential	Solar - All Other	N/A	2,800	37.0%	37.0%	37.0%	37.0%	37.0%	100%	0%	0%	0%	0%
					100%	100%	100%	100%	100%					
Non-Residential														
Non-Residential's contribution to total DE energy requirement					**40%**	**40%**	**40%**	**40%**	**40%**					
					Project type's contribution to total Non-Residential energy requirement									
BIOMASS/BIOGAS (electric)	Non-Residential	Biomass/Biogas	80	490,560	2.5%	2.5%	2.5%	2.5%	2.5%	0%	0%	0%	0%	100%
BIOGAS/BIOMASS - CHP (electric)	Non-Residential	Biomass/Biogas	166	1,017,912	5.0%	5.0%	5.0%	5.0%	5.0%	0%	0%	0%	0%	100%
BIOGAS/BIOMASS - CHP (thermal)	Non-Residential	Biomass/Biogas	333	2,041,956	10.0%	10.0%	10.0%	10.0%	10.0%	0%	0%	0%	0%	100%
BIOMASS/BIOGAS (thermal)	Non-Residential	Biomass/Biogas	100	350,400	3.5%	3.5%	3.5%	3.5%	3.5%	0%	0%	0%	0%	100%
BIOMASS/BIOGAS (cooling)	Non-Residential	Biomass/Biogas	50	175,200	0.9%	0.9%	0.9%	0.9%	0.9%	0%	0%	0%	0%	100%
NON-RESIDENTIAL DAYLIGHTING (1)	Non-Residential	Other	N/A	50,000	15.0%	15.0%	15.0%	15.0%	15.0%	100%	0%	0%	0%	0%
Reserved	Non-Residential	Other								0%	0%	0%	0%	100%
GEOTHERMAL - (electric)	Non-Residential	Geothermal	1,000	7,008,000	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%	0%	0%	100%
GEOTHERMAL - (thermal)	Non-Residential	Geothermal	1,000	7,008,000	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%	0%	0%	100%
Reserved	Non-Residential	Other								0%	0%	0%	0%	100%
PV NON-RESIDENTIAL - small	Non-Residential	Solar PV	3	4,468	2.0%	2.0%	2.0%	2.0%	2.0%	100%	0%	0%	0%	0%
PV NON-RESIDENTIAL (grid-tied)	Non-Residential	Solar PV	50	78,840	49.9%	49.9%	49.9%	49.9%	49.9%	0%	40%	20%	0%	40%
PV NON-RESIDENTIAL (off-grid)	Non-Residential	Solar PV	5	7,446	0.0%	0.0%	0.0%	0.0%	0.0%	0%	0%	0%	0%	100%
SMALL WIND Non-Residential (grid-tied)	Non-Residential	Wind	4.5	9,855	0.1%	0.1%	0.1%	0.1%	0.1%	0%	0%	0%	0%	100%
SMALL WIND Non-Residential (off-grid)	Non-Residential	Wind	4.5	9,855	0.1%	0.1%	0.1%	0.1%	0.1%	0%	0%	0%	0%	100%
SOLAR SPACE COOLING	Non-Residential	Solar - All Other	200	324,120	4.0%	4.0%	4.0%	4.0%	4.0%	0%	0%	0%	0%	100%
SOLAR WATER HEATING/SPACE HEATING (1)	Non-Residential	Solar - All Other	N/A	160,000	5.0%	5.0%	5.0%	5.0%	5.0%	0%	0%	0%	0%	100%
NON-RESIDENTIAL POOL HEATING (1)	Non-Residential	Solar - All Other	N/A	100,000	2.0%	2.0%	2.0%	2.0%	2.0%	0%	0%	0%	0%	100%
					100.0%	100.0%	100.0%	100.0%	100.0%					
					Wholesale's contribution to total DE requirement									
Wholesale	Wholesale				**10%**	**10%**	**10%**	**10%**	**10%**					

1) System capacity and size is depicted in kWh as these items are not electrical generators

Exhibit 4B: APS Distributed Energy Projected Program Outcomes

Amended based on Decision No. 70654

	2009	2010	2011	2012	2013
Annual Program Cost ($000s)					
Residential UFI	49,250	44,915	53,466	66,632	32,503
Residential PBI	-	-	-	-	-
Sub-Total Residential	*49,250*	*44,915*	*53,466*	*66,632*	*32,503*
Non-Residential UFI	1,259	1,572	1,872	2,333	1,125
Non-Residential PBI	2,133	4,796	7,966	11,917	13,840
Sub-Total Non-Residential	*3,391*	*6,368*	*9,838*	*14,249*	*14,964*
Total Residential and Non-Residential	**52,642**	**51,283**	**63,303**	**80,881**	**47,467**
UFI	50,509	46,487	55,337	68,964	33,628
PBI	2,133	4,796	7,966	11,917	13,840
Existing PBI Commitments	3,149	3,149	3,149	3,149	3,149
Total UFI & PBI	**55,791**	**54,432**	**66,452**	**84,030**	**50,616**
Total Wholesale	**207**	**361**	**574**	**851**	**1,030**
Annual Energy Production (MWHs)					
Residential	*44,298*	*75,214*	*116,105*	*167,065*	*196,259*
Non-Residential	*35,438*	*60,171*	*92,884*	*133,652*	*157,007*
Wholesale	*8,860*	*15,043*	*23,221*	*33,413*	*39,252*
Total Residential and Non-Residential	**88,595**	**150,427**	**232,209**	**334,131**	**392,518**
UFI	63,300	98,421	144,873	202,764	235,928
PBI	16,436	36,964	64,116	97,953	117,338
Total UFI & PBI	**79,736**	**135,385**	**208,989**	**300,718**	**353,266**
Incremental Installed Capacity (kWs)					
Residential UFI	13,394	12,215	16,156	20,135	11,535
Residential PBI	-	-	-	-	-
Sub-Total Residential	*13,394*	*12,215*	*16,156*	*20,135*	*11,535*
Non-Residential UFI	266	332	439	548	314
Non-Residential PBI	7,587	9,477	12,534	15,621	8,949
Sub-Total Non-Residential	**7,853**	**9,809**	**12,973**	**16,168**	**9,262**
Total Residential and Non-Residential	21,247	22,024	29,130	36,303	20,797
Cumulative Total					
Residential	13,394	25,609	41,766	61,900	73,435
Non-Residential	7,853	17,662	30,635	46,803	56,066
Total Residential and Non-residential	21,247	43,271	72,401	108,704	129,501
Cumulative Installed Capacity (kWs)					
Residential UFI	13,394	25,609	41,766	61,900	73,435
Residential PBI	-	-	-	-	-
Sub-Total Residential	*13,394*	*25,609*	*41,766*	*61,900*	*73,435*
Non-Residential UFI	266	598	1,037	1,585	1,899
Non-Residential PBI	7,587	17,064	29,598	45,219	54,167
Sub-Total Non-Residential	*7,853*	*17,662*	*30,635*	*46,803*	*56,066*
Total Residential and Non-Residential	**21,247**	**43,271**	**72,401**	**108,704**	**129,501**
UFI	13,660	26,207	42,803	63,485	75,333
PBI	7,587	17,064	29,598	45,219	54,167
Total UFI & PBI	**21,247**	**43,271**	**72,401**	**108,704**	**129,501**
Incremental Number of Installations					
Residential UFI	8,919	8,134	10,759	13,408	7,681
Residential PBI	-	-	-	-	-
Sub-Total Residential	*8,919*	*8,134*	*10,759*	*13,408*	*7,681*
Non-Residential UFI	148	185	245	305	175
Non-Residential PBI	148	185	244	304	174
Sub-Total Non-Residential	*296*	*370*	*489*	*609*	*349*
Total Residential and Non-Residential	**9,215**	**8,504**	**11,248**	**14,017**	**8,030**
Cumulative Number of Installations					
Residential UFI	8,919	17,054	27,812	41,220	48,901
Residential PBI	-	-	-	-	-
Sub-Total Residential	*8,919*	*17,054*	*27,812*	*41,220*	*48,901*
Non-Residential UFI	*148*	*333*	*578*	*882*	*1,057*
Non-Residential PBI	*148*	*333*	*577*	*881*	*1,056*
Sub-Total Non-Residential	*296*	*666*	*1,154*	*1,764*	*2,113*
Total Residential and Non-Residential	**9,215**	**17,719**	**28,967**	**42,984**	**51,014**
UFI	9,067	17,387	28,390	42,102	49,958
PBI	148	333	577	881	1,056
Total UFI & PBI	**9,215**	**17,719**	**28,967**	**42,984**	**51,014**

Exhibit 4C: APS Distributed Energy Projected Program Outcomes by Technology

	Residential or Non-Residential	2009			2010			2011			2012			2013		
		# Installs	MWHs	kW	# Installs	MWHs	kW	# Installs	MWHs	kW	# Installs	MWHs	kW	# Installs	MWHs	kW
Residential																
SMALL WIND Residential (off-grid)	Residential	17	170	77	16	155	71	21	204	93	26	255	116	15	146	67
SMALL WIND Residential (grid-tied)	Residential	69	678	310	83	818	282	83	818	373	103	1,019	465	59	584	267
PV RESIDENTIAL (grid-tied)	Residential	4,300	20,340	12,900	3,921	18,550	11,764	5,167	24,535	15,560	6,464	30,576	19,391	3,703	17,516	11,109
PV RESIDENTIAL (off-grid)	Residential	54	170	107	49	155	98	65	204	130	81	255	162	46	146	93
SOLAR THERMAL/WATER HEATING (1)	Residential	4,480	12,543	-	4,085	11,439	-	5,403	15,130	-	6,734	18,855	-	3,858	10,802	-
Total Residential Incremental		**8,919**	**33,901**	**13,394**	**8,134**	**30,918**	**12,215**	**10,759**	**40,891**	**16,156**	**13,408**	**50,961**	**20,135**	**7,681**	**29,194**	**11,535**
Non-Residential																
BIOMASS/BIOGAS (electric)	Non-Residential	1	495	81	1	618	101	2	816	133	2	1,019	166	1	584	95
BIOGAS/BIOMASS - CHP (electric)	Non-Residential	1	990	161	1	1,237	202	2	1,636	267	2	2,036	332	1	1,168	190
BIOGAS/BIOMASS - CHP (thermal)	Non-Residential	1	1,980	323	1	2,473	403	2	3,271	533	2	4,077	665	1	2,335	381
BIOMASS/BIOGAS (thermal)	Non-Residential	2	693	198	2	866	247	3	1,145	327	4	1,427	407	2	817	233
BIOMASS/BIOGAS (cooling)	Non-Residential	1	178	51	1	223	64	2	294	84	2	367	105	1	210	60
NON-RESIDENTIAL DAYLIGHTING (1)	Non-Residential	59	2,970	-	74	3,710	-	98	4,907	-	122	6,115	-	70	3,503	-
Reserved	Non-Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GEOTHERMAL - (electric)	Non-Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GEOTHERMAL - (thermal)	Non-Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserved	Non-Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PV NON-RESIDENTIAL - small	Non-Residential	89	396	266	111	495	332	146	654	439	183	815	548	105	467	314
PV NON-RESIDENTIAL (grid-tied)	Non-Residential	125	9,881	6,267	157	12,342	7,827	207	16,324	10,352	258	20,343	12,902	148	11,654	7,391
PV NON-RESIDENTIAL (off-grid)	Non-Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALL WIND Non-Residential (grid-tied)	Non-Residential	2	20	9	3	25	11	3	33	15	4	41	19	2	23	11
SMALL WIND Non-Residential (off-grid)	Non-Residential	2	20	9	3	25	11	3	33	15	4	41	19	2	23	11
SOLAR SPACE COOLING	Non-Residential	2	792	489	3	989	610	4	1,308	807	5	1,631	1,006	3	934	576
SOLAR WATER HEATING/SPACE HEATING (1)	Non-Residential	8	990	-	8	1,237	-	10	1,636	-	13	2,036	-	7	1,168	-
NON-RESIDENTIAL POOL HEATING (1)	Non-Residential	4	396	-	5	495	-	7	654	-	8	815	-	5	467	-
Total Non-Residential Incremental		**296**	**19,892**	**7,883**	**370**	**24,733**	**9,809**	**489**	**32,713**	**12,973**	**609**	**40,766**	**16,168**	**349**	**23,355**	**9,262**
Total Wholesale Incremental			**8,869**			**16,043**			**23,221**			**33,413**			**39,282**	
Total Incremental		**9,215**	**62,662**	**21,247**	**8,504**	**70,692**	**22,024**	**11,248**	**96,826**	**29,130**	**14,017**	**125,142**	**36,303**	**8,030**	**91,831**	**20,797**

1) System capacity and size is depicted in kWh as these items are not electrical generators

Exhibit 4D: PBI Commitment (In Thousands)								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
New PBI Contracts:								
New PBI Annual Commitment	$ 56	$ 93	$ 3,149	$ 2,133	$ 2,664	$ 3,170	$ 3,951	$ 1,923
Anticipated Fraction Produced in Year	0%	0%	25%	50%	50%	50%	50%	50%
Cash Commitment for New PBIs	**$ -**	**$ -**	**$ 787**	**$ 1,067**	**$ 1,332**	**$ 1,585**	**$ 1,976**	**$ 962**
Existing PBI Contracts:								
2006 Contracts		$ -	$ 56	$ 56	$ 56	$ 56	$ 56	$ 56
2007 Contracts			$ 93	$ 93	$ 93	$ 93	$ 93	$ 93
2008 Contracts				$ 3,149	$ 3,149	$ 3,149	$ 3,149	$ 3,149
2009 Contracts					$ 2,133	$ 2,133	$ 2,133	$ 2,133
2010 Contracts						$ 2,664	$ 2,664	$ 2,664
2011 Contracts							$ 3,170	$ 3,170
2012 Contracts								$ 3,951
2013 Contracts								
Cash Commitment for Existing PBIs	**$ -**	**$ -**	**$ 149**	**$ 3,298**	**$ 5,431**	**$ 8,095**	**$ 11,265**	**$ 15,216**
Annual Cash Commitment for All PBIs	**$ -**	**$ -**	**$ 936**	**$ 4,365**	**$ 6,763**	**$ 9,680**	**$ 13,241**	**$ 16,178**
Cumulative Lifetime Commitment for All PBIs	**$ 560**	**$ 1,490**	**$ 46,363**	**$ 77,292**	**$ 115,920**	**$ 161,885**	**$ 219,174**	**$ 247,058**

APS Renewable Energy Standard
Amended based on Decision No. 70654

Attachment B

Distributed Energy Administration Plan

ATTACHMENT B
Amended based on Decision No. 70654

Arizona Public Service Company

APS

Distributed Energy

Administration Plan

July 1, 2008

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ARIZONA PUBLIC SERVICE CORPORATION
2007 DISTRIBUTED ENERGY ADMINISTRATION PLAN

1. OVERVIEW

APS has prepared this Distributed Energy Administration Plan ("DEAP" or the "Plan") in compliance with the Renewable Energy Standard and Tariff ("RES") requirement for filing of a Uniform Credit Purchase Program ("UCPP").[1]

The RES requires that a portion of the renewable energy requirements be obtained from distributed energy ("DE"), and that the installed resources result from residential systems and non-residential systems in equal proportions. As part of its RES Implementation Plan, APS has described that it does not plan to install distributed resources at customer properties, but rather the installation of DE systems will be facilitated by providing customers with financial incentives for the installation of those resources.

Arizona Corporation Commission ("Commission" or "ACC") Staff initiated the Uniform Credit Purchase Program ("UCPP") working group in June 2006, and APS participated in all of the working group efforts. The working group made significant progress towards the development of recommendations to Commission Staff, but a final report has not yet been completed. The working group made considerable progress towards identifying program workflows, technology sensitive incentive structures and levels, and technology specific requirements and limitations. APS will use the approach and technology requirements developed by the UCPP working group for this Plan. If, in the future, the Commission adopts UCPP requirements differing from those implemented as part of this plan, this plan may require amendment.

The efforts of the working group also provided APS with insight on the anticipated potential contributions from technologies not previously included in APS's DE programs. This Plan and the associated planning models, implementation strategies, and budgeting for the DE program were all designed with specific consideration of the insights provided by the UCPP working group. In addition, in developing the DEAP, APS relied on over five years experience with the Solar Partners Incentive program and ongoing dialogue with many industry stakeholders.

This Plan details the process by which customers will obtain incentives; requirements associated with the selection, installation, and operation of the DE system; and the measurement of DE performance for compliance reporting and program evaluation. This Plan is designed to provide uniformity and consistency in the administration of APS's DE program.

As part of the RES, the energy generated or displaced by the DE system is applied towards the percentage of the utility's renewable energy requirement.[2] The unit used to track kilowatt hours ("kWh") derived from renewable resources for purposes of compliance with the RES is the

[1] A.A.C. R14-2-1810.B - "No later than July 1, 2007, each Affected Utility shall file a Uniform Credit Purchase Program for Commission review and approval."
[2] A.A.C. R14-2-1805.B.

Renewable Energy Credit ("REC").[3] One REC equals one kWh or kWh equivalent for systems that do net generate electricity.

This Plan will ensure that each customer with eligible technology will be afforded the opportunity to obtain a reservation. The processes described herein are based on experience with technologies and systems with which APS has considerable experience; technologies, incentive configurations, and development models which are newly incorporated may require special consideration until new implementation strategies and methods can be defined.

The following DE technologies are eligible for incentives:

- Biogas Electricity Generator, Biomass Electricity Generator
- Grid-tied and Off-grid Solar Photovoltaic Generators ("PV")
- Biomass Thermal Systems and Biogas Thermal Systems
- Non-residential Solar Pool Heating Systems
- Geothermal Space Heating and Process Heating Systems
- Geothermal Electricity Generator
- Renewable Combined Heat and Power System ("CHP")
- Non-residential Solar Daylighting
- Solar Heating, Ventilation, and Air Conditioning ("Solar HVAC")
- Solar Industrial Process Heating and Cooling
- Solar Space Cooling
- Solar Space Heating
- Solar Water Heater
- Grid-tied and Off-grid Wind Generators of 1 megawatt ("MW") or less
- Fuel Cells that use only renewable fuels
- New Hydropower Generators of 10 MW or less

2. PROJECT CATEGORIES

There are three project categories described by this Plan: Standardized projects, Market-Based projects, and Customer Self-Directed projects.

2.1 Standardized Projects

Unless noted otherwise in this Plan, all information contained herein applies to the administration of standardized projects. By definition, standardized projects follow the procedures and incentives described in this Plan. Incentives available for these projects are described in Exhibit 1. APS anticipates that the vast majority of projects facilitated by this Plan will be standardized projects. The processes described for the standard projects are based on experience with technologies and systems with which APS has considerable experience;

[3] A.A.C. R14-2-1801.N – " "Renewable Energy Credit" means the unit created to track kWh derived from an Eligible Renewable Resource of kWh equivalent of Conventional Energy Resource displaced by Distributed Renewable Resources."

technologies and incentive configurations which are newly incorporated may require special consideration until new implementation strategies and methods can be developed.

2.2 Market-Based Projects

Since considerable uncertainty exists with respect to this Plan's ability to meet all expected project variations with standardized incentive offerings, APS believes it is appropriate to fund market-based projects during each program year. That funding will be applied to projects which, for one reason or another, cannot comply with the requirements of the standardized incentive offerings. APS may also solicit market-based projects to meet specific program goals. For example, although the DEAP attempts to identify and accommodate a large range of potential DE project types, financing options, and system host alternatives, specific shortcomings were identified in the proposed approach. Those shortcomings include concerns for increasing cost effectiveness of residential incentives, facilitating installations for multi-tenant residential developments, and challenging DE developers to look at creative mechanisms by which to address the residential DE market.

Projects with staged completion dates, multi-participant or multi-system projects, projects involving more than one technology where an interrelated incentive was not developed, projects requiring new or unique agreement terms, or projects requiring timelines differing from those detailed in this Plan may be eligible for incentives as part of the DEAP. In addition, this Plan does not identify incentives for fuel cells and small hydroelectric facilities; those technologies may also be eligible for incentives as market-based projects.

Incentives used for market-based projects must achieve similar financial efficiency as those incentives detailed for a particular technology as part of this Plan. Incentives applied for market-based projects must meet the lower of: 1) the maximum allowable incentive for the proposed technology, as described in the applicable incentive matrix attached as Exhibit 1; or 2) the average incentive of projects accepted by APS for disbursement for the proposed technology in the previous year. Some qualifying technologies will not have either of the previously described financial efficiency measures. Participants seeking to employ those technologies will work with APS to develop an appropriate incentive.

2.3 Customer Self-Directed

The Customer Self-Directed project funding option is available to eligible customers.[4] The eligible customer must declare that it will self-direct on or before March 31 of the year prior to the year for self-direction. Customer Self-Directed funds can only be requested for prospective years, they cannot include prior year payments, and they cannot exceed the level of funding paid by the eligible customer towards the RES in the year prior to the requested allocation.

Incentives used for Customer Self-Directed projects must also achieve similar financial efficiency as those incentives detailed in this Plan (Exhibit 1). If the eligible customer wishes to apply Customer Self-Directed funds to a DE System or another application not described in the

[4] A.A.C. R14-2-1801.H – " "Eligible Customer" means an entity that pays Tariff funds of at least $25,000 annually for any number of related accounts or services within an Affected Utility's service area."

applicable Incentive Matrix, the customer must submit documentation describing the project economics and the requested incentive level. All projects proposed for Customer Self-Directed funding must meet the requirements described in the RES.[5]

Eligible customers who have facilities in the service territories of more than one affected utility can only apply for funds from APS that were collected by APS. The funds obtained from APS can only be used for projects in APS's service territory. Customer Self-Directed projects are also subject to the general requirements set forth in this Plan including installation, operation, REC exchange, and system performance reporting.

For purposes of financing DE projects, funds for Customer Self-Directed projects may be assigned to third parties. Such assignment remains the sole right of the customer.

2.4 General

Under some circumstances, such as for new residential or non-residential construction, a project may not identify the Participant at project initiation. Regardless of the project design, implementation, or timeline, a Participant must have installed a system that is ready for commissioning and, if grid-tied, have established an account to receive electrical service from APS before the incentive will be paid.

3. INCENTIVE TYPES

The DE Program offers two standard incentive options: Up-front Incentives ("UFI") and Production-Based Incentives ("PBI").

UFIs are those incentives where the Participant receives a one time payment based on the DE system's designed capacity, or a one time payment based on the first-year energy savings provided by the DE system. This type of incentive is applied to smaller non-residential installations and for all standard residential installations. PBIs allow the Participant to collect incentive payments in direct relation to the actual system production. Those payments are received by the Participant over time and are based on an agreed upon contract term.

Incentive levels for both UFIs and PBIs are detailed in ~~three~~ five incentive matrices included in Exhibit 1. ~~The first matrix describes incentive levels for year one and two of the program, the second matrix describes incentive levels for year three and four of the program. The third matrix describes incentives levels for years five and six of the program~~. Each incentive matrix prescribes a decline from the incentive levels detailed for the preceding period of the program. Those declines were discussed in detail as part of Commission Staff's UCPP Working Group. In general, the declining incentive levels are designed to reflect several key expectations of the DE markets, which include: declining costs of DE technologies; economic efficiency resulting from increased demand on the DE technologies; and increased availability of equipment required in the development of DE systems.

[5] A.A.C. R14-2-1809.B.

ATTACHMENT B
Amended based on Decision No. 70654

4. PROGRAM REQUIREMENTS

Requirements detailed in this Plan are designed to provide clarity for program Participants and DE developers; increase the certainty of energy generation and as a result, production of the RECs for APS's compliance with the RES; and to ultimately drive cost-effectiveness for the DE requirement in the RES.

4.1 General

This program is designed to facilitate Participant installation of DE resources to displace Conventional Energy Resource[6] usage. Program incentives are designed to defray a portion of the costs associated with the installation of DE resources for the program "Participant." The Participant is either the account holder for the APS billing meter at the project site or the party holding legal right to the property in APS territory where the DE system will be located. Systems must be located on the Participant's property. All systems must be in APS territory. A project developer that builds an eligible DE system that provides a portion of the system's energy output to a non-Participant must provide metering to document the energy produced by the DE system that is received specifically by the program Participant.

Funding is not guaranteed without written confirmation of a reservation from APS. The Participant must follow the reservation procedure outlined in this Plan for APS to set allocated incentive dollars for the specific DE system proposed. If a Participant is receiving electrical service from APS, the Participant must not be delinquent in payments to the Company before incentive payment can be issued.

Specific funding allocations are used to implement the DE incentive program. Once funds have been exhausted in any one category of this program, a Participant applying for funding within that category may be placed on a waiting list.

4.1.1 Reservations for New Construction

Reservations can be made for systems that will be installed as part of new residential or non-residential construction. Prior to receipt of a program incentive, a Participant must have installed a system that is ready for commissioning and, if grid-tied, have established an account to receive electrical service from APS before the incentive will be paid.

4.2 Installation and Equipment Specifications

Systems receiving incentives under this program must be installed according to manufacturers' recommendations and generally accepted industry standards. Installation of the system must be completed by an installer meeting the requirements described in Section 5.1 "Installer Qualifications." The dealer for the system must meet the requirements described in Section 5.2

[6] A.A.C. R14-2-1801.C – " "Conventional Energy Resource" means an energy resource that is non-renewable in nature, such as natural gas, coal, oil, and uranium, or electricity that is produced with energy resources that are not Renewable Energy Resources."

"Dealer Qualifications." Requirements not specified in this Plan, but which are applicable under this Plan, include, but are not limited to, the following:

- The project must comply with all applicable local, state, and federal regulations.
- Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.
- Systems must be permitted with and pass inspection by the Authority Having Jurisdiction (AHJ) over construction projects in the Participant's locale, or, if the site is not governed by an AHJ, the Participant must provide a certification in lieu of AHJ clearance.
- If the inverter of the DE system is interconnected or in any way connected to the APS grid – a "Grid-Tied System" – the system must meet all applicable APS Interconnection Requirements.
- APS may request copies of any documents to assure compliance with government, institutional, or DE program requirements that are either explicitly or implicitly described by this Plan.

If any of the requirements described in this Plan conflict with APS approved rate schedules, or government or other institutional requirements listed above, the conflicting requirements in this Plan may not be imposed.

All major components of the DE system must be new and must not have been previously placed in service in any other location or for any other application. A DE system purchased more than 180 days before the date that APS receives the reservation request will not be considered "new" under this Plan. APS may consider exceptions to this timeframe when justified by the Participant in writing. The DE system must also comply with the technology specific criteria detailed below. When some technology-specific criteria reference third party standards, the requirements of those standards are fully applicable when referenced as part of technology specific criteria.

The rapid growth in national and international renewable energy programs is resulting in greater need for the development of standardization in design, performance measurement, system integrity/longevity/maintenance, and installation techniques. New standards are likely to develop in the near future for technologies included in the DE program, and APS reserves the right to incorporate new standards into plan requirements as necessary and appropriate. The following standards or standard development bodies are referenced as part of the technology specific criteria.

- The Active Solar Heating Systems Design Manual developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. ("ASHRAE") in cooperation with the Solar Energy Industries Association ("SEIA") and the ACES Research and Management Foundation (the "Design Manual").
- Arizona state boiler regulations (A.A.C. R20-5-401 to R20-5-420).

- Select technology specific qualification requirements developed by the California Energy Commission ("CEC").
- Solar Rating and Certification Corporation ("SRCC"). The SRCC criteria and ratings can be viewed at www.solar-rating.org.
- The Underwriters Laboratory ("UL").

The technology standards are relied upon, in part, to develop a clear understanding of the DE system capacity or the expected energy production. Incentives offered under this program are based on system capacity and energy production. Therefore, to encourage transparency in program transaction and clarity for Participants, current and accurate technology standards are fundamental to the program's success.

Some technologies included as DE under the RES, tend to be designed as custom applications and vary from installation to installation. In other cases, technologies are generally standardized for all installations. In these situations, installation standards have been published under the end-use application. If no technology specific standard is referenced, at a minimum, to qualify for DE incentives, an Energy Savings and Designed Output ("ES&D") report shall be provided as part of the reservation process.

The ES&D report must include either a testing certification for a substantially similar system prepared by a publicly funded laboratory, or an engineering report stamped by a registered professional engineer. The ES&D report shall provide a description of the system and major components, designed performance, system output, and a brief history of the components used in similar applications. If the system design differs from the recognized industry best practices, as described in the equipment qualifications listed in the Plan for the qualifying technology, the ES&D report must contain a certification that the system design is at least as effective as the specified requirements.

Where the equipment qualifications detailed below are required for program participation, the technology specific installation guidance is provided to program participants to convey information on installation and operation practices that are most likely to achieve the DE system's designed output. The requirements described herein are not intended as engineering recommendations, services, or technical advice. Engineering recommendations, design, and performance data will be provided to the Participant by their supplier, installer, or professional advisor. Although installation guidance is not currently mandated for a project to receive an incentive, it does reflect both industry and utility concurrence on those practices that are important for a technology to best achieve the designed output. APS reserves the right to modify equipment qualifications and/or installation guidance if APS becomes aware that such qualifications or guidance results in unsafe conditions, provides inappropriate results for our customer, or is inconsistent with program objectives.

4.2.1 Biomass/Biogas and CHP (Electric and Thermal) and Biomass/Biogas Cooling

Equipment Qualifications

- Systems must include a dedicated performance meter to allow for monitoring of the number of RECs produced.
- A complete ES&D report must be submitted. Biomass system installations involving a regulated boiler or pressure vessel are required to include in the ES&D report confirmation of conformance with all Arizona state boiler regulations; provide a qualifying boiler inspection identification number; and keep all applicable permits in good standing.

Installation Guidance

Because of the individual nature of biomass systems, care should be taken to make sure the system complies with all applicable permitting and regulatory requirements, including but not limited to, air emission standards and air permit regulations.

4.2.2 Non-residential Solar Daylighting

Equipment Qualifications

Energy savings and designed output for the system will be verified by submitting either a testing certification for a substantially similar system prepared by a publicly funded laboratory, or by submitting an engineering reporting stamped by a registered professional engineer or accredited AEE Measurement and Verification professional. The report shall include such items as installed cost, energy savings (lighting savings only – no associated HVAC savings), lighting levels (artificial and daylighting), and control scheme methodology (lighting levels, savings, and control mechanism), as well as the inclusion the following components as part of the overall daylighting system design:

- A roof mounted skylight assembly with a dome having a minimum 70% solar transmittance.
- A reflective light well to the interior ceiling or a minimum 12" below roof deck in open bay areas.
- An interior diffusion lens.
- A minimum of one thermal break/dead air space in the system between the skylight dome and the interior diffuser.
- If artificial lighting systems remain a part of the installation, the system shall include automated lighting control(s) that are programmed to keep electric lights off during daylight hours.
- The system must provide a minimum of 70% of the light output of the artificial lighting system that would otherwise be used for all of the claimed period of energy savings, as measured in foot-candles.

Installation Guidance

All systems should be installed such that the skylight dome is substantially unshaded and have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

4.2.3 Small Wind Generator

A small wind generator is a system with a nameplate rating of 1 (one) MW or less. The technology criteria described below are intended for small wind generators with a nameplate rating of 100kW or less. Systems larger than 100 kW will be required to submit a detailed package describing site selection, expected energy production, and an engineered system design and installation as part of an ES&D report.

Equipment Qualifications

The technology criteria described below are intended for wind generators with a nameplate rating of 100kW or less.

- Eligible small wind systems must be certified and nameplate rated by the CEC or other qualified third party selected by APS to provide certification and a nameplate rating. See www.consumerenergycenter.org/erprebate/equipment.html for a list of certified generators. For grid-tied or off-grid wind generators where an inverter is used, the CEC listed nameplate rating of the wind generator will be multiplied by the CEC approved weighted efficiency percentage listed for the inverter in the "List of Eligible Inverters" at www.consumerenegycenter.org/cgi-bin/eligible_inverters.cgi to calculate the wind turbine nameplate rating for use in determining the UFI payment.
- Grid-tied inverters used as part of the system shall be listed to Underwriters Laboratory standard UL 1741.
- The tower used in the installation must be designed by a registered professional engineer.
- The wind generator and system must include a five year warranty and an operation and maintenance plan for the full operational life of the system.

In addition to the requirements for small wind generators outlined above, systems nameplate rating larger than 100 kW will be required to submit an ES&D Report.

Installation Guidance

Location: a wind turbine hub should be at least 20 feet above any surrounding object and at least 28 feet above the ground within a 250-foot radius. Wind generators should be installed in locations with an elevation at or above the general elevation of the surrounding terrain.

Lot size: should be at minimum one-half acre. Municipalities and public facilities, such as schools and libraries, may not need to meet the minimum lot size requirements.

The installed system should be demonstrated to obtain at least a 15% annual capacity factor. The following are readily available methods for helping to demonstrate the potential for a 15%

capacity factor, but other methods may be used. The installation location should have a demonstrated average annual wind speed of at least 9 MPH as measured at a height of no more than 50 feet above the ground. Average annual wind speed can be demonstrated by wind speed records from an airport, weather station or university within 20 miles of the proposed wind generator location, or by a 50 meter wind power density classification of Class 2 "Marginal" or higher on the "State of Arizona Average Annual Wind Resource" map, dated July 16, 2005 or later, as published by Sustainable Energy Solutions of Northern Arizona University. Northern Arizona University provides detailed wind resource maps as well as other resource services. For more information contact Northern Arizona University at http://wind.nau.edu/maps/.

4.2.4 Photovoltaic Systems

- All systems shall be installed with a horizontal tilt angle between 0 degrees and 60 degrees, and azimuth angle of +/- 110 degrees of due south. Since some installation alternates are less than ideal for energy production, some installation configurations for some systems receiving a UFI will not be eligible for the full incentive applicable to that system. APS will apply the PV off-angle and shading factor adjustment for the PV installation (Section 6.5).
- Photovoltaic modules must be covered by a manufacturer's warranty of at least 20 years.
- Inverters must be covered by a manufacturer's warranty of at least five years. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

Grid-Tied Systems Equipment Qualifications

- The minimum PV array size shall be 1,000 W-DC.
- All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of UL Standard 1703.
- All other electrical components used in the installation must be UL listed.
- The inverter must be listed to Underwriters Laboratories UL 1741

Off-Grid Systems Equipment Qualifications

- The minimum, single-system PV array size shall be 200 W-DC.
- All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of the UL Standard 1703.
- All other electrical components used in the installation must be UL listed.
- If the installation is an AC application, the inverter must be listed to Underwriters Laboratories UL 1741
- "As-built" drawings shall be submitted to APS upon completion of the project and shall include a plant location map.

4.2.5 Solar Space Cooling

Equipment Qualifications

- Submittal of a complete ES&D Report certifying:
  - The minimum cooling capacity of the system will be 120,000 BTU per hour (10 tons).
  - Solar collector panels used will have a SRCC OG-100 rating or laboratory documentation showing the panel energy output under controlled and replicable test conditions.

Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.

4.2.6 Non-residential Solar Water Heating and Space Heating

Equipment Qualifications

Submittal of a complete ES&D Report that includes certification that solar collector panels used shall have a SRCC OG-100 certification or laboratory documentation showing the panel energy output under controlled and replicable test conditions.

Installation Guidance

- The horizontal tilt angle of the collector panels should be between 20 and 60 degrees and the panel orientation should be between +/- 45 degrees of south.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.

4.2.7 Small Domestic Solar Water Heating

Equipment Qualifications

- Domestic Solar Water Heating systems must be rated by the SRCC and meet the OG-300 system standard.
- The 'high' limit shall be set at a maximum of 160 degrees Fahrenheit.
- Contractors must provide minimum of a five year equipment warranty as provided by the system manufacturer, including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining

operational life must be supported by a planned maintenance or equipment replacement schedule.

- Systems shall be selected and sized according to the geographic location and hot water needs of the specific application.
- Active, open-loop systems are not eligible for incentives except for active, open-loop systems that have a proven technology or design that limits scaling and internal corrosion of system piping, and includes appropriate automatic methods for freeze protection. Details disclosing conformance with this exception shall be submitted as part of the manufacturer's verification documentation.
- ICS systems shall have a minimum collector piping wall thickness of 0.058 inches. Details disclosing conformance with this requirement shall be submitted as part of the manufacturer's verification documentation.

Installation Guidance

- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 am and 3 pm.

4.2.8 Small Domestic Solar Space Heating

Equipment Qualifications

- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.
- Submittal of a report verifying that:
  - The system will be incented based on a Solar Space Heating Incentive Calculation Procedure. The input sheet and description calculation procedure is attached provided as Exhibit 2 (APS will make the calculation procedure publicly available upon program implementation).
  - The system will utilize OG-100 certified collectors.
- The solar space heating incentive calculation does not suggest or imply that a full energy audit is required to qualify for the solar space heating incentive. The intent is that industry professionals can utilize the calculation tool to aid in facilitating sound system design.

Installation Guidance

- The system should be installed with a horizontal tilt angle between 20 degrees and 60 degrees, and azimuth angle of +/- 60 degrees of due south. It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as

recommended by the manufacturer for the specific collector type and geographic location of installation.

- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.
- Heat exchange fluid in glycol systems should be tested and flushed and refilled with new fluid as necessary, every five years, or per the manufacturer's recommendations.
- It is recommended that the anode rod be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
- It is recommended that the system design include a timer, switch, or other control device on the backup element of the storage tank.
- The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
- It is recommended that in areas where water quality problems are reported to have reduced expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that, through interaction with the materials of the proposed system, may reduce the expected operational life of the system components. The Participant should consider contacting the manufacturer to determine if warranty or operational life will be affected.
- In areas subject to snow accumulation, sufficient clearance should be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
- Each system should have an operation and maintenance manual at the Participant's site, and each Participant must complete an initial start up and operation training review with the contractor at the time of system start up.

4.2.9 Residential Solar Thermal (Heating and Domestic Hot Water)

Residential Solar Thermal is a single system design that produces both space heating and water heating for residential use. An ES&D Report must be submitted that includes certification that solar collector panels used shall have a SRCC OG-100 certification or laboratory documentation showing the panel energy output under controlled and replicable test conditions. Report details should broken out on a month-by-month basis, and should include the following: total solar production based on installation and location, total building BTU requirements, BTU space heating requirements, domestic hot water BTU requirements, and any other hot water BTU requirements.

Equipment Qualifications

- The system will utilize OG-100 certified collectors
- The system must be supported by a five year equipment warranty including a minimum warranty period of two years for repair/replacement service to the

Participant. The remaining operational life must be supported by a planned maintenance or equipment replacement schedule.

Installation Guidance

- The system should be installed with a horizontal tilt angle between 20 degrees and 60 degrees, and azimuth angle of +/- 60 degrees of due south. It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation.
- All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9 a.m. and 3 p.m.
- Heat exchange fluid in glycol systems should be tested and flushed and refilled with new fluid as necessary, every five years, or per the manufacturer's recommendations.
- It is recommended that the anode rod be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
- It is recommended that the system design include a timer, switch, or other control device on the backup element of the storage tank.
- The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
- It is recommended that in areas where water quality problems are reported to have reduced expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that, through interaction with the materials of the proposed system, may reduce the expected operational life of the system components. The Participant should consider contacting the manufacturer to determine if warranty or operational life will be affected.
- In areas subject to snow accumulation, sufficient clearance should be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
- Each system should have an operation and maintenance manual at the Participant's site, and each Participant must complete an initial start up and operation training review with the contractor at the time of system start up.

4.2.10 Non-Residential Pool Heating

Equipment Qualifications

- Submittal of a complete ES&D Report.

4.3 Inspection

DE systems must be permitted with and inspected by the Authority Having Jurisdiction ("AHJ") over construction projects in the Participant's locale or the Participant must provide to APS a Letter in Lieu of Electrical Clearance[7] or other waiver acceptable to APS. Any inspections conducted by APS are in addition to, not in lieu of, these building and construction related inspections. Access to the system shall be made available to APS during normal business hours for the purpose of conducting the applicable APS inspection. Note that APS will at times be inspecting system components on the Participant side of the meter.

All grid-tied systems will be inspected by APS to ensure the system is connected to the grid in conformance with APS Interconnection Requirements.[8] Under no circumstances is any grid-tied system to be installed in parallel or otherwise connected with the APS system until such time that the system has been inspected by APS and written authorization is received from APS. APS will normally conduct the interconnection inspection only after the system has been inspected by the AHJ.

APS will select a subset of DE program reservations for an APS DE Program conformance inspection. The selected systems will be required to pass the conformance inspection before the Participant is eligible to receive an incentive payment. The purpose of the conformance inspection is to ensure that the system has been installed in accordance with the terms, conditions, and specifications provided on the Reservation Application and Credit Purchase Agreement and with the requirements outlined in this DEAP. The conformance inspections for photovoltaic systems will normally also include verification of the PV off-angle and shading factor reported for the PV installation in the reservation.

APS will randomly select some DE Program installations whose systems will receive a maintenance inspection to field verify that the system is being operated in compliance with the terms and conditions agreed to in the Reservation Request and Credit Purchase Agreement and the requirements outlined in this Plan. The purpose of the maintenance inspection is to gather information that will assist APS in its evaluation of the effectiveness of the DEAP.

4.4 Metering and Meter Reading

All DE systems must include a system dedicated kWh meter, or meters, which allows for measurement of system energy production (the "Performance Meter"). The Performance Meter must be installed in compliance with the APS Electric Service Requirements Manual (ESRM) Section 300, which is available on aps.com, and must be installed so as to record the renewable energy A/C power output produced by the inverter or generator. If Performance Meter output data is used to calculate a PBI, other metering arrangements may be required depending on the configuration of the system. These arrangements may include wireless or telephone line telemetry at the customer's expense. The Performance Meters are in addition to the APS billing meter and must be appropriately identified as the "Photovoltaic, Wind, etc., Performance Meter." The Performance Meter must be calibrated to meet industry standards and must provide either

[7] Available on APS.com.
[8] Available on APS.com.

direct kWh readings or readings which can readily be converted to kWh (RECs) using standard engineering conversions. The Performance Meter is required to be located adjacent to the APS billing meter unless otherwise approved by APS.

In those circumstances where the DE system is a hybrid system (i.e., uses more than one technology), APS requires that a Performance Meter be in place to measure the RECs (kWh) produced from each renewable resource so that the information can be accurately recorded.

APS may, at its discretion, install APS-owned Performance Meters for system monitoring purposes. A Performance Meter owned and read by APS may facilitate APS's ability to gather performance data and to report system performance to the Participant on their standard APS bill.

System generation (REC production) must be reported annually to APS for UFI Participants, unless other arrangements have been approved by APS. Participants utilizing PBIs will be provided with monthly system production on a quarterly basis. The reported production is to be verified by the participant or authorized representative and returned to APS along with the Renewable Energy Credit documentation. Payment for system production will be made on a quarterly basis following APS's receipt of the REC documentation and production verification.

4.5 REC Ownership

As part of APS's payment of a UFI, the utility will be given complete and irrevocable ownership of all RECs expected from system production for 20 years, the expected or planned effective life of the DE system. APS's payment of a PBI will assure APS complete and irrevocable ownership of the REC for the full duration of the PBI agreement. Renewable Energy Credits provided to APS as a result of a DE system installation will be applied towards APS' RES targets.

4.6 System Maintenance

To ensure a system benefit received by the REC purchase, APS requires that the Participant maintain and operate the DE system in APS territory for the specific duration detailed in the Reservation Request and Credit Purchase Agreement. If the DE system either needs to be removed from the Participant property or if it is no longer operational, the Participant must notify APS within five business days after the DE system is either removed from the property or is no longer operational. Short (those lasting less than one month) system "outages" as part of system repair or planned maintenance are anticipated as part of this program and need not be reported in accordance with the above requirement.

5. INSTALLER AND DEALER QUALIFICATIONS

The installer must possess a valid license on file with the Arizona Registrar of Contractors ("AZROC"), with a license classification appropriate for the technology being installed, or the installer must identify use of a contractor holding an appropriate license on file with the AZROC for the technology being installed.

If the equipment dealer is party to the reservation request, the dealer must provide proof of possession of a business license that is in good standing with the appropriate agency(ies) and must also provide proof of liability insurance if the business license provided does not require liability insurance.

6. INCENTIVES

6.1 Funding Allocation

As is described in APS's 2009 RES Implementation Plan, the annual funding level for DE incentives was established based on the estimates of anticipated consumer demand for the various technologies, project sales and development time frames, variations in the levels of technology maturity, and availability of equipment for installation. The proposed DE incentive budget and the incentive budget allocation are designed to result in half of the distributed energy to be from residential installations and half from non-residential.[9]

The incentive matrices in Exhibit 1 describe incentive reductions every two years of the program. Those planned reductions are designed to reflect the anticipation that DE technologies will decline in cost as market penetration and product availability increase. Six specific DE budget allocations are described in the 2009 APS RES Implementation Plan; they include: existing production-based contracts, wholesale contracts, residential up-front incentives, non-residential up-front incentives, new non-residential production-based incentives, and customer self-direct. Budget allocations for market-based projects are derived as a portion of the respective DE budget allocation which they support.

In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied towards the next program year. The funds will be applied to the next program year and allocated to achieve the required energy outcome between residential and non-residential projects.

Funds are made available for project reservations on the first working day after January 1st of each program year. Funds for residential projects will be made available for reservations on a first-come, first-reserved basis.

Total non-residential funds will be equally divided into six periods (January and February, March and April, May and June, July and August, September October, and November and December) with each equaling two calendar months. Non-residential reservation requests are submitted as a bid expressed in $/REC (or $/kWh) and, if a PBI, the preferred REC and payment terms. Each bid is evaluated by a project ranking "calculator." A sample ranking calculator was prepared as part of the Commission Staff UCPP working group; APS' ranking calculator will be designed to function in substantially the same manner as the sample calculator. The input sheet and description for the sample calculator is attached provided as Exhibit 3. APS will make the ranking calculator publicly available on aps.com.

[9] A.A.C. R14-2-1805.D.

In the event that demand for non-residential funds exceeds a period allocation, APS may provide reservations to those projects above the allocation depending on the current RES compliance status and availability of funding.

In the event that funds collected for use in the DE incentive program are not fully subscribed in a program year, those funds will be applied towards the next program year. The funds will be allocated to achieve the required energy outcome between residential and non-residential projects.

6.2 Incentive Principles

As part of this Plan, residential systems are eligible only for UFIs. Non-residential systems may receive either a UFI or a PBI, depending on the technology and the installation size. UFIs were developed for technologies where the average project size results in a total incentive less than or equal to $75,000. PBIs were developed for technologies where the average project size results in a total incentive totaling more than $75,000, based on the net-present value of the total of incentive payments or the otherwise applicable UFI.

Incentive funds can be applied to a "project," which is the sum of all DE systems installed at a Participant site that are eligible for program incentives in a single calendar year. A Participant site can obtain a UFI for multiple projects, under separate reservations, up to $75,000 at each Participant site per calendar year. Once the sum of incentives for all project(s) exceeds the $75,000 limit, incentives for additional projects will take the form of a PBI.

6.2.1 Reservations for New Residential Construction

Incorporation of DE systems into the development of new residential construction requires the reservation of funds in a manner other than that described in the standard UFI process. Approved reservations for incentive funds for new construction will conform to the following provisions:

a. Funds may be reserved for up to three years for a single development or sub-division. A single reservation may request incentive funding for multiple systems.
b. All funds within a reservation must be allocated to specific lots within the development or sub-division.
c. The reservation must specifically indicate the development schedule for the identified lots and the year when the incentive payment is expected. Once a project is initiated, funding "adjustments" can not exceed 10 percent of the requested annual funding.
d. Funds reserved but uncollected as completed projects in one year will be forfeited.
e. Once funds have been reserved for a lot, no future reservation may be applied to that lot or the same technology until the original reservation has expired.

6.3 Standardized Incentives

The incentives levels provided as part of this Plan were collaboratively developed, and, in part, were created to help or expand incipient markets for DE, taking into account each technology's specific market conditions, and placing a portion of the cost on the Participant. Incentive levels are provided in accordance with the applicable year project incentive matrix included as Exhibit 1.

6.4 Incentive Caps

DE incentives can be applied to systems designed to serve only the typical load of the Participant. The assessment of that typical load does not preclude the periodic production of electricity in excess of the Participant's demand. Under some circumstances it is understood that select Participant installations will be designed to serve loads greater than that of the Participant. Under those circumstances, the incentive will be applied only to the fraction of the generation that is used to serve the typical Participant load. The DE incentives were developed separate and apart from other utility program incentives, such as those for demand side management projects. Systems are not eligible to receive DE incentives if incentives from other APS programs are received.

A PBI cannot exceed 60% of the "total project cost" for the DE system. Total project costs are defined as the undiscounted total system cost plus "acceptable financing" charges, if disclosed by the participant. Acceptable finance charges are finance charges used for the PBI incentive cap calculation and cannot exceed the current prime interest rate plus 5%. Financing charges may be disclosed as part of the commissioning package, if not disclosed before. The PBI incentive cap will decline in the third year of the program to 55% of the real project cost, and the cap will decline further to 50% of the real project cost in the fifth year of the program and beyond. Both residential and non-residential UFIs cannot exceed 50% of the system cost. Financing costs are not considered as part of the total system cost for these projects.

Dealer's and manufacturer's incentives are capped at 50% of the system cost basis. Dealers cannot include installation costs in the cost basis calculation. Dealers must provide verification for the cost paid for each system component. Manufacturers cannot include their own technology in the cost basis.

For residential solar hot water heating systems, Participants are required to contribute a minimum of 15% of the "actual system cost." The actual system cost will be calculated by assuming the full application of all available federal and state incentives, regardless of the Participant's ability to realize any particular incentive; adding the Participant contribution (15%), and finally adding the program incentive. If the incentive can be fully applied without exceeding the actual system cost, the Participant will receive the full incentive amount. If the incentive cannot be fully applied without exceeding the actual system cost, the incentive will be capped so as not to exceed the system cost.

6.5 De-Rating of Photovoltaic System Incentives

The productivity of photovoltaic systems is sensitive to the specifics of the installation method and location. In particular, these systems are impacted by shading and photovoltaic panel tilt angle and azimuth. This variability in system performance is taken into account when adjusting the available UFI level and determining the actual amount of incentive received by the Participant. Incentives for photovoltaic systems will be adjusted in accordance with the PV Off-Angle and Shading Adjustment Table attached as Exhibit 4 and has been revised since the previously approved DEAP. This was based on feedback from several installers attempting to use the chart in the early stages on implementing the incentive program under the RES. Participants and installers found the chart confusing to use and punitive for standard installations located in certain geographic areas. APS believes these issues will be corrected with the new chart, but the intent of reducing incentives for sub-optimal installations remains.

6.6 Payment of PBIs

Participants utilizing PBI will be provided with monthly system production on a quarterly basis. The reported production is to be verified by the participant or authorized representative and returned to APS along with the Renewable Energy Credit documentation. Payment for system production will be made on a quarterly basis following APS's receipt of the REC documentation and production verification.

6.7 Taxes

Participant is solely responsible for the payment of any and all taxes applicable to the DE resource and/or the incentive payment(s).

6.8 Assignment of Payment

Systems may be owned by third parties, and APS may make payments to such third parties upon the written consent of the Participant. Participants may assign payments to an installer, dealer, or developer. APS will consider assignment to other parties upon request by the Participant.

6.9 Default

If Participant fails to maintain and operate the DE system in APS territory for the period detailed in the Credit Purchase Agreement, which is never less than ten (10) years, the Participant shall be considered in default of the terms and conditions of the incentive payment agreement. Participants in default will be subject to damages and must reimburse the Program for all or a portion of the incentive(s) received to that point, subject to the terms of the Credit Purchase Agreement. The default terms in the Credit Purchase Agreement will vary slightly depending on whether the incentive is a UFI or PBI, but are designed to reimburse the Program for environmental credits that were paid and/or accounted for through the full incentive term, but not received. This is especially important for UFIs where APS is entitled to 20 years of credits through the payment of one up-front incentive.

ATTACHMENT B
Amended based on Decision No. 70654

7. RESERVATION PROCESS OVERVIEW

Participant submits a reservation request to APS: The Participant must submit a signed reservation request supplied by APS.

Participant receives reservation confirmation: After reviewing the reservation request, APS will assign a reservation status. If the reservation request is approved, APS will send a written confirmation to the applicant. Approved reservations will be logged in the order received.

If the reservation request is deficient in meeting one or more of the program requirements, APS will inform the Participant of the nature of the deficiency and will allow the Participant to correct the deficiency. If the reservation request is denied because funding is not available, the request will be placed on a waiting list and APS will send written notification to the applicant.

Credit Purchase Agreement: PBI participants must execute a Credit Purchase Agreement within 60 days of the date of the reservation confirmation from APS.

Proof of Advancement: The Participant may be required to submit Proof of Advancement (written progress report) to APS within 60 days or reservation approval for UFIs, and within 120 days of reservation approval for PBIs to retain an active reservation. The purpose of the Proof of Advancement requirement is to ensure that reservation dollars are allocated to projects that will advance to the installation stage. Reservations requiring Proof of Advancement will be notified at the time of reservation approval.

Interconnection Application: The interconnection application and site plan diagram is submitted to APS. APS will provide preliminary approval that the system meets interconnection standards (grid-tied). Final approval will not be issued until the interconnection inspection is completed.

Participant Proceeds with Installation: Obtain all required permits and proceed with system installation.

Grid-tied systems: Systems are required to pass an interconnection inspection that will be conducted by APS before the system can be authorized to operate in parallel to the APS grid. APS will conduct the interconnection inspection only after the system has been inspected by the AHJ or if APS has received a Letter in Lieu of Electrical Inspection. If the DE system passes the interconnection inspection, APS will provide the Participant with a written document that provides "Permission to Operate." If the DE system fails the interconnection inspection, the reservation can remain active, as long as the deficiency is remedied within the defined reservation timeframe.

Commissioning Packet: Participant must submit a signed Commissioning Packet supplied by APS. At a minimum, the Commissioning Packet will include certification from the installer/dealer and Participant that the system installed was consistent with the terms and conditions of the Reservation Packet and this Plan. If a material change was made between the time APS approved the reservation and the date APS received the Commissioning Packet, the Participant must complete an Amended Application. If the change increases the incentive

amount the system is eligible to receive, APS will confirm that DE program funding is available. If funding is not available, APS will only provide an incentive in the amount requested in the Reservation Packet. Changes in the project plan that result in increased system output will only result in additional incentives beyond the original reservation amount if RES funding is sufficient/available.

If the system is a photovoltaic system that has been selected to receive a conformance inspection, the incentive may be adjusted in accordance with the provision set out in Section 6.5 of this Plan.

If the system has been selected to receive a conformance inspection, as detailed in Section 4.3, the incentive payment will not be processed until after the system has passed the conformance inspection.

APS sends incentive payment: For UFIs, APS will send the incentive payment or initiate incentive payments in accordance with the instructions provided by the Participant in the signed Commissioning Packet. For participants under a PBI, the payment process in Section 6.6 above will be followed.

8. EXTENSIONS AND CANCELLATION POLICY

A Participant will receive a written notice of pending cancellation if all program requirements have not been met within the reservation timeframe. The reservation timeframe for UFIs is 180 days from the reservation confirmation date. For PBIs, the reservation timeframe is 365 days from the reservation confirmation. APS may grant an extension for up to 90 days following timely receipt of a Participant's request for extension and may approve written extension requests beyond 90 days under extenuating circumstances. APS may request additional support for the Proof of Advancement to be considered the extension.

9. ENERGY REPORTING PROGRAM MONITORING

APS will track progress toward program goals on an ongoing basis to monitor program effectiveness and sufficiency of the funding allocation. APS will compile data received from conducting the conformance and maintenance inspections, meter readings, and analyze trends in Participant participation and technology installation. The data will be evaluated on an ongoing basis to better understand critical factors impacting the incentive structures and the overall effectiveness of this Plan. If the DEAP need to be adjusted to reflect new information, changing market conditions, incorrect initial assumptions, or technological innovations, APS will bring those issues to the attention of the Commission in a timely manner.

APS will report on the productivity of all distributed resource on an annual basis. For PBI systems, APS will report on the actual metered production of each system as reported by the Participant and confirmed by APS. For systems receiving a UFI, APS will report on the total installed capacity and projected productivity. APS will develop a method by which to calibrate the reported productivity and shall monitor that method for long-term accuracy.

On occasion, a DE system, which received a UFI, will be removed from the Participant property prior to the end of its agreement term without the permission of the utility. Also, on occasion, a DE system, which had received a UFI, will be in need of a repair which the Participant does not plan to complete. If either situation occurs, and if despite reasonable efforts on the part of the APS the Participant will not reinstall or repair the DE system, then APS will continue to reflect in its annual compliance reporting the annual historic energy production for the system until the agreement term for the system has been completed.

In addition, APS will monitor that specific Participant and Property to ensure that an additional incentive is not provided for any new DE system on that property until the operational life of the incented system has been completed. APS will attempt to monitor the number of missing and unrepaired DE systems and shall summarize its observations in its annual compliance report.

Amended based on Decision No. 70654

Exhibit 1

Distributed Energy Incentives

UFI Matrix

	Residential or Non-Residential	Resource Type	1 Year Beginning 2009	2 2010	3 2011	4 2012	5 2013
Residential[1]							
SMALL WIND Residential (off-grid)	Residential	Wind	$2.00/Watt	$2.00/Watt	$1.80/Watt	$1.80/Watt	$1.53/Watt
SMALL WIND Residential (grid-tied)	Residential	Wind	$2.50/Watt	$2.50/Watt	$2.25/Watt	$2.25/Watt	$1.91/Watt
PV RESIDENTIAL (grid-tied)[2]	Residential	Solar PV	$3.00/Watt	$3.00/Watt	$2.70/Watt	$2.70/Watt	$2.30/Watt
PV RESIDENTIAL (off-grid)[2]	Residential	Solar PV	$2.00/Watt	$2.00/Watt	$1.80/Watt	$1.80/Watt	$1.53/Watt
SOLAR THERMAL[3,4]	Residential	Solar - All Other	$0.50/kWh	$0.50/kWh	$0.45/kWh	$0.45/kWh	$0.38/kWh
SMALL SOLAR WATER HEATING[4, 5]	Residential	Solar - All Other	$0.75/kWh	$0.75/kWh	$0.68/kWh	$0.68/kWh	$0.57/kWh
Non-Residentia[6]							
BIOMASS/BIOGAS (electric)	Non-Residential	Biomass/Biogas	-	-	-	-	-
BIOGAS/BIOMASS - CHP (electric)[7]	Non-Residential	Biomass/Biogas	-	-	-	-	-
BIOGAS/BIOMASS - CHP (thermal)[7]	Non-Residential	Biomass/Biogas	-	-	-	-	-
BIOMASS/BIOGAS (thermal)	Non-Residential	Biomass/Biogas	-	-	-	-	-
BIOMASS/BIOGAS (cooling)	Non-Residential	Biomass/Biogas	-	-	-	-	-
NON-RESIDENTIAL DAYLIGHTING[4]	Non-Residential	Other	$0.20/kWh	$0.20/kWh	$0.18/kWh	$0.18/kWh	$0.15/kWh
GEOTHERMAL - (electric)	Non-Residential	Geothermal	$0.50/Watt	$0.50/Watt	$0.45/Watt	$0.45/Watt	$0.38/Watt
GEOTHERMAL - (thermal)	Non-Residential	Geothermal	$1.00/Watt	$1.00/Watt	$0.90/Watt	$0.90/Watt	$0.77/Watt
PV NON-RESIDENTIAL - small[2]	Non-Residential	Solar PV	$2.50/Watt	$2.50/Watt	$2.25/Watt	$2.25/Watt	$1.91/Watt
PV NON-RESIDENTIAL (grid-tied)[2]	Non-Residential	Solar PV	$2.50/Watt	$2.50/Watt	$2.25/Watt	$2.25/Watt	$1.91/Watt
PV NON-RESIDENTIAL (off-grid)[2]	Non-Residential	Solar PV	$1.50/Watt	$1.50/Watt	$1.35/Watt	$1.35/Watt	$1.15/Watt
SMALL WIND Non-Residential (grid-tied)[8]	Non-Residential	Wind	$2.50/Watt	$2.50/Watt	$2.25/Watt	$2.25/Watt	$1.91/Watt
SMALL WIND Non-Residential (off-grid)[8]	Non-Residential	Wind	$2.00/Watt	$2.00/Watt	$1.80/Watt	$1.80/Watt	$1.53/Watt
SOLAR SPACE COOLING[4,9]	Non-Residential	Solar - All Other	$1.00/kWh	$1.00/kWh	$0.90/kWh	$0.90/kWh	$0.77/kWh
SOLAR WATER HEATING / SPACE HEATING[4,9]	Non-Residential	Solar - All Other	$0.45/kWh	$0.45/kWh	$0.41/kWh	$0.41/kWh	$0.34/kWh
NON-RESIDENTIAL POOL HEATING[4]	Non-Residential	Solar - All Other	$0.10/kWh	$0.10/kWh	$0.09/kWh	$0.09/kWh	$0.08/kWh

PBI Matrix 1	**Contract Years**	**10**	**PBI Years**	**10**			
			1	2	3	4	5
	Residential or Non-Residential	**Resource Type**	**Year Beginning**				
			2009	**2010**	**2011**	**2012**	**2013**
Non-Residential[6]							
BIOMASS/BIOGAS (electric)	Non-Residential	Biomass/Biogas	$0.060/kWh	$0.060/kWh	$0.054/kWh	$0.054/kWh	$0.046/kWh
BIOGAS/BIOMASS - CHP (electric)[7]	Non-Residential	Biomass/Biogas	$0.035/kWh	$0.035/kWh	$0.032/kWh	$0.032/kWh	$0.027/kWh
BIOGAS/BIOMASS - CHP (thermal)[7]	Non-Residential	Biomass/Biogas	$0.018/kWh	$0.018/kWh	$0.016/kWh	$0.016/kWh	$0.014/kWh
BIOMASS/BIOGAS (thermal)	Non-Residential	Biomass/Biogas	$0.015/kWh	$0.015/kWh	$0.014/kWh	$0.014/kWh	$0.011/kWh
BIOMASS/BIOGAS (cooling)	Non-Residential	Biomass/Biogas	$0.032/kWh	$0.032/kWh	$0.029/kWh	$0.029/kWh	$0.025/kWh
NON-RESIDENTIAL DAYLIGHTING	Non-Residential	Other	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
GEOTHERMAL - (electric)	Non-Residential	Geothermal	$0.024/kWh	$0.024/kWh	$0.022/kWh	$0.022/kWh	$0.019/kWh
GEOTHERMAL - (thermal)	Non-Residential	Geothermal	$0.048/kWh	$0.048/kWh	$0.044/kWh	$0.044/kWh	$0.037/kWh
PV NON-RESIDENTIAL - small[2]	Non-Residential	Solar PV					
PV NON-RESIDENTIAL (grid-tied)[2]	Non-Residential	Solar PV	$0.202/kWh	$0.202/kWh	$0.182/kWh	$0.182/kWh	$0.154/kWh
PV NON-RESIDENTIAL (off-grid)[2]	Non-Residential	Solar PV	$0.121/kWh	$0.121/kWh	$0.109/kWh	$0.109/kWh	$0.093/kWh
SMALL WIND Non-Residential (grid-tied)[8]	Non-Residential	Wind	$0.145/kWh	$0.145/kWh	$0.131/kWh	$0.131/kWh	$0.111/kWh
SMALL WIND Non-Residential (off-grid)[8]	Non-Residential	Wind	$0.116/kWh	$0.116/kWh	$0.105/kWh	$0.105/kWh	$0.089/kWh
SOLAR SPACE COOLING[9]	Non-Residential	Solar - All Other	$0.129/kWh	$0.129/kWh	$0.116/kWh	$0.116/kWh	$0.099/kWh
SOLAR WATER HEATING / SPACE HEATING[9]	Non-Residential	Solar - All Other	$0.057/kWh	$0.057/kWh	$0.051/kWh	$0.051/kWh	$0.043/kWh
NON-RESIDENTIAL POOL HEATING	Non-Residential	Solar - All Other	$0.012/kWh	$0.012/kWh	$0.011/kWh	$0.011/kWh	$0.009/kWh

PBI Matrix 2	**Contract Years**	**15**	**PBI Years**	**15**			
	Residential or Non-Residential	**Resource Type**	**1 Year Beginning 2009**	**2 2010**	**3 2011**	**4 2012**	**5 2013**
Non-Residential[6]							
BIOMASS/BIOGAS (electric)	Non-Residential	Biomass/Biogas	$0.056/kWh	$0.056/kWh	$0.050/kWh	$0.050/kWh	$0.043/kWh
BIOGAS/BIOMASS - CHP (electric)[7]	Non-Residential	Biomass/Biogas	$0.032/kWh	$0.032/kWh	$0.029/kWh	$0.029/kWh	$0.025/kWh
BIOGAS/BIOMASS - CHP (thermal)[7]	Non-Residential	Biomass/Biogas	$0.017/kWh	$0.017/kWh	$0.015/kWh	$0.015/kWh	$0.013/kWh
BIOMASS/BIOGAS (thermal)	Non-Residential	Biomass/Biogas	$0.014/kWh	$0.014/kWh	$0.013/kWh	$0.013/kWh	$0.011/kWh
BIOMASS/BIOGAS (cooling)	Non-Residential	Biomass/Biogas	$0.030/kWh	$0.030/kWh	$0.027/kWh	$0.027/kWh	$0.023/kWh
NON-RESIDENTIAL DAYLIGHTING	Non-Residential	Other	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
GEOTHERMAL - (electric)	Non-Residential	Geothermal	$0.022/kWh	$0.022/kWh	$0.020/kWh	$0.020/kWh	$0.017/kWh
GEOTHERMAL - (thermal)	Non-Residential	Geothermal	$0.045/kWh	$0.045/kWh	$0.040/kWh	$0.040/kWh	$0.034/kWh
PV NON-RESIDENTIAL - small[2]	Non-Residential	Solar PV					
PV NON-RESIDENTIAL (grid-tied)[2]	Non-Residential	Solar PV	$0.187/kWh	$0.187/kWh	$0.168/kWh	$0.168/kWh	$0.143/kWh
PV NON-RESIDENTIAL (off-grid)[2]	Non-Residential	Solar PV	$0.112/kWh	$0.112/kWh	$0.101/kWh	$0.101/kWh	$0.086/kWh
SMALL WIND Non-Residential (grid-tied)[8]	Non-Residential	Wind	$0.135/kWh	$0.135/kWh	$0.121/kWh	$0.121/kWh	$0.103/kWh
SMALL WIND Non-Residential (off-grid)[8]	Non-Residential	Wind	$0.108/kWh	$0.108/kWh	$0.097/kWh	$0.097/kWh	$0.082/kWh
SOLAR SPACE COOLING[9]	Non-Residential	Solar - All Other	$0.120/kWh	$0.120/kWh	$0.108/kWh	$0.108/kWh	$0.092/kWh
SOLAR WATER HEATING / SPACE HEATING[9]	Non-Residential	Solar - All Other	$0.052/kWh	$0.052/kWh	$0.047/kWh	$0.047/kWh	$0.040/kWh
NON-RESIDENTIAL POOL HEATING	Non-Residential	Solar - All Other	$0.011/kWh	$0.011/kWh	$0.010/kWh	$0.010/kWh	$0.009/kWh

PBI Matrix 3	**Contract Years**	**10**	**PBI Years**	**20**			
	Residential or Non-Residential	**Resource Type**	**1 Year Beginning**	**2**	**3**	**4**	**5**
			2009	**2010**	**2011**	**2012**	**2013**
Non-Residentia [6]							
BIOMASS/BIOGAS (electric)	Non-Residential	Biomass/Biogas	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
BIOGAS/BIOMASS - CHP (electric)[7]	Non-Residential	Biomass/Biogas	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
BIOGAS/BIOMASS - CHP (thermal)[7]	Non-Residential	Biomass/Biogas	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
BIOMASS/BIOGAS (thermal)	Non-Residential	Biomass/Biogas	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
BIOMASS/BIOGAS (cooling)	Non-Residential	Biomass/Biogas	$0.040/kWh	$0.040/kWh	$0.036/kWh	$0.036/kWh	$0.031/kWh
NON-RESIDENTIAL DAYLIGHTING	Non-Residential	Other	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
GEOTHERMAL - (electric)	Non-Residential	Geothermal	$0.030/kWh	$0.030/kWh	$0.027/kWh	$0.027/kWh	$0.023/kWh
GEOTHERMAL - (thermal)	Non-Residential	Geothermal	$0.060/kWh	$0.060/kWh	$0.054/kWh	$0.054/kWh	$0.046/kWh
PV NON-RESIDENTIAL - small[2]	Non-Residential	Solar PV					
PV NON-RESIDENTIAL (grid-tied)[2]	Non-Residential	Solar PV	$0.250/kWh	$0.250/kWh	$0.225/kWh	$0.225/kWh	$0.191/kWh
PV NON-RESIDENTIAL (off-grid)[2]	Non-Residential	Solar PV	$0.150/kWh	$0.150/kWh	$0.135/kWh	$0.135/kWh	$0.115/kWh
SMALL WIND Non-Residential (grid-tied)[8]	Non-Residential	Wind	$0.180/kWh	$0.180/kWh	$0.162/kWh	$0.162/kWh	$0.138/kWh
SMALL WIND Non-Residential (off-grid)[8]	Non-Residential	Wind	$0.144/kWh	$0.144/kWh	$0.130/kWh	$0.130/kWh	$0.110/kWh
SOLAR SPACE COOLING[9]	Non-Residential	Solar - All Other	$0.160/kWh	$0.160/kWh	$0.144/kWh	$0.144/kWh	$0.122/kWh
SOLAR WATER HEATING / SPACE HEATING[9]	Non-Residential	Solar - All Other	$0.070/kWh	$0.070/kWh	$0.063/kWh	$0.063/kWh	$0.054/kWh
NON-RESIDENTIAL POOL HEATING	Non-Residential	Solar - All Other	$0.015/kWh	$0.015/kWh	$0.014/kWh	$0.014/kWh	$0.011/kWh

PBI Matrix 4	**Contract Years**	**20**	**PBI Years**	**20**			
	Residential or Non-Residential	**Resource Type**	**1 Year Beginning**	**2**	**3**	**4**	**5**
			2009	**2010**	**2011**	**2012**	**2013**
Non-Residential[6]							
BIOMASS/BIOGAS (electric)	Non-Residential	Biomass/Biogas	$0.054/kWh	$0.054/kWh	$0.048/kWh	$0.048/kWh	$0.041/kWh
BIOGAS/BIOMASS - CHP (electric)[7]	Non-Residential	Biomass/Biogas	$0.031/kWh	$0.031/kWh	$0.028/kWh	$0.028/kWh	$0.024/kWh
BIOGAS/BIOMASS - CHP (thermal)[7]	Non-Residential	Biomass/Biogas	$0.016/kWh	$0.016/kWh	$0.014/kWh	$0.014/kWh	$0.012/kWh
BIOMASS/BIOGAS (thermal)	Non-Residential	Biomass/Biogas	$0.013/kWh	$0.013/kWh	$0.012/kWh	$0.012/kWh	$0.010/kWh
BIOMASS/BIOGAS (cooling)	Non-Residential	Biomass/Biogas	$0.029/kWh	$0.029/kWh	$0.026/kWh	$0.026/kWh	$0.022/kWh
NON-RESIDENTIAL DAYLIGHTING	Non-Residential	Other	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh	$0.000/kWh
GEOTHERMAL - (electric)	Non-Residential	Geothermal	$0.022/kWh	$0.022/kWh	$0.019/kWh	$0.019/kWh	$0.017/kWh
GEOTHERMAL - (thermal)	Non-Residential	Geothermal	$0.043/kWh	$0.043/kWh	$0.039/kWh	$0.039/kWh	$0.033/kWh
PV NON-RESIDENTIAL - small[2]	Non-Residential	Solar PV					
PV NON-RESIDENTIAL (grid-tied)[2]	Non-Residential	Solar PV	$0.180/kWh	$0.180/kWh	$0.162/kWh	$0.162/kWh	$0.138/kWh
PV NON-RESIDENTIAL (off-grid)[2]	Non-Residential	Solar PV	$0.108/kWh	$0.108/kWh	$0.065/kWh	$0.065/kWh	$0.083/kWh
SMALL WIND Non-Residential (grid-tied)[8]	Non-Residential	Wind	$0.130/kWh	$0.130/kWh	$0.117/kWh	$0.117/kWh	$0.099/kWh
SMALL WIND Non-Residential (off-grid)[8]	Non-Residential	Wind	$0.104/kWh	$0.104/kWh	$0.094/kWh	$0.094/kWh	$0.080/kWh
SOLAR SPACE COOLING[9]	Non-Residential	Solar - All Other	$0.115/kWh	$0.115/kWh	$0.104/kWh	$0.104/kWh	$0.088/kWh
SOLAR WATER HEATING / SPACE HEATING[9]	Non-Residential	Solar - All Other	$0.051/kWh	$0.051/kWh	$0.045/kWh	$0.045/kWh	$0.039/kWh
NON-RESIDENTIAL POOL HEATING	Non-Residential	Solar - All Other	$0.011/kWh	$0.011/kWh	$0.010/kWh	$0.010/kWh	$0.008/kWh

DISTRIBUTED ENERGY ADMINISTRATION PLAN CONFORMING PROJECT INCENTIVES- NOTES TO UFI AND PBI MATRICES:

1) Residential projects are only eligible for up-front incentives (UFI). UFI payments, whether residential or non-residential, can not exceed 50% of the system cost.
2) Some installations will require an adjustment of the incentive as detailed in the PV Incentive Adjustment Chart.
3) Residential Solar Thermal is a single system design that produces both space heating and water heating for residential use. These applications require a report detailing energy savings for the complete system.
4) Rate applies to rated first year energy savings only.
5) Energy savings rating is based on the SRCC OG-300 published rating. The customer contribution must be a minimum of 15% of the project cost after accounting for and applying all available Federal and State incentives.
6) Non-residential projects with a total incentive of less than or equal to $75,000 are only eligible for a UFI. Non-residential projects with a total incentive of greater than $75,000 are only eligible for a production-based incentive. The total payments under a PBI can not exceed 60% of the Project Costs.
7) The CHP incentives may be used in combination for the appropriate components of one system.
8) The small wind PBI applies to a maximum sytem size of 100 kW. A larger wind system may apply for an incentive as a non-conforming project.
9) The solar space heating and cooling incentives may be used in combination for the appropriate components of one system.

Amended based on Decision No. 70654

Exhibit 2

Solar Space Heating Incentive Calculator

Amended based on Decision No. 70654

Solar Space Heating Incentive Calculation Procedure.

In Advance, please perform the Design Review and Utility Bill Review (if Applicable) for numbers to enter in Steps #1, #2 and #5.

Elevation Zone Table:

Min Elevation	Max Elevation	Heating Season Days	Daily Panel Heat Output
-1000	1000	105	0
1001	3000	140	0
3001	5000	175	0
5001	7000	210	0
7001	9000	245	0
9001	11000	280	0

Collector Thermal Performance Rating
Data From OG-100 Sheet

Category:	Delta T	Clear Day
A	-9 Deg. F.	0
B	+9 Deg. F.	0
C	+36 Deg. F.	0
D	+90 Deg. F.	0
E	+144 Deg. F.	0

Enter Solar Panel Make and Model Number Selected for Project:

Step #1:	Enter the result of the Design Review of the Design Annual Building Loss =	0	BTU/Year
Step #2:	Enter the result of the Utility Bill Review of the Actual Annual Building Loss: (If not Electric, Natural Gas or Propane Heat, enter 0) =	0	BTU/Year
Step #3:	Calculate the Lesser of the Result in Step #1 & Step #2 = This is the Annual Building Heat Requirement.	0	BTU/Year
Step #4:	Enter Elevation of the Solar Space Heated Building:	0	Feet AMSL
Step #4 cont:	Number of Heating Days per Heating Season from Elevation Zone Table:	105	Days per Year
Step #4 cont:	Calculate Average Daily Building Heat Requirement =	0	BTU/Day
Step #5:	Enter Passive Heat Storage Specific Heat Capacity from Building Design Review:	0	BTU/Deg. F.
Step #5 cont:	Enter Maximum Daily Room Temperature Variation Allowed by Building Occupants: (Max of 10 Degrees F.)	0	Degrees F.
Step #5 cont:	Calculate Maximum Passive Heat Storage Capacity =	0	BTU
Step #5 cont:	Enter Total Active Heat Storage Heat Capacity from Building Design Review:	0	BTU
Step #5 cont:	Calculate Maximum Total Heat Storage Capacity =	0	BTU
Step #6:	Calculate the Lesser of the Average Daily Building Heat Requirement in Step #4 and the Maximum Total Storage Capacity in Step #5. This is the Maximum Useful Daily Solar Heat Input.	0	BTU/Day
Step #7:	Size the Solar Panels based on a total daily solar heat input no greater than the Maximum Useful Daily Solar Heat Input. Enter the single panel SRCC OG-100 Collector Thermal Performance Rating data in the Table Above.	0	BTU/Day per Panel
Step #7cont:	Enter the Total number of solar panels to be installed:	0	# of Panels
Step #7cont:	Calculate the Average Expected Daily Solar Heat Input:	0	BTU/Day
Step #8:	Calculate the Expected Annual Useful Solar KWH Heat Input using the Number of Heating Days times the Average Expected Daily Solar Heat Input / 3415 BTU/KWH:	0	KWH/Year
Step #9:	Enter the UFI per first year KWH UCPP Incentive Rate:	$0.75	$/KWH
Step #9 cont:	Calculate the Total Maximum UFI Payment Subject to Possible Limitation by the 50% of Initial Cost Cap & 15% Minimum Customer Contribution:	$0.00	$
Step #10:	Enter the Total Solar Space Heating System Initial Cost: This should not include costs for Passive Heat Storage or Building Heating System.	$0.00	$
Step #10 cont:	Calculate the Total Expected Federal and Arizona Incentives for this Project:	$0.00	$
Step #10 cont:	Calculate the 15% minimum of the Total Solar Space Heating System Inititial Cost to be paid by Customer	$0.00	$
Step #10 cont:	Calculate the Total Actual UFI Payment:	$0.00	$

Amended based on Decision No. 70654

Exhibit 3

Standard Project PBI Ranking Calculator

PBI INDEX CALCULATOR

	Input Terms	
P1	Incentive Terms	10-year PBI, 10 year REC
P2	Project Cost ($)	100
P3	Estimated Annual Production (kWH)	1
P4	Requested PBI ($/kWH)	0.0100
	Output Terms	
P5	Index Value	111
P6	Calculated Incentive Cap	60
P7	Total Incentive Payout	0

Pull-down box for input of PBI term

Input Project Cost

Input Estimated Annual Energy Production in KWHs

Input requested PBI rate

Index Value

UFI INDEX CALCULATOR

	Input Terms	
U1	Technology Incentive Type	Up Front Incentive
U2	Capital Cost ($)	100
U3	Capacity (kW)	1
U4	Estimated Annual Production (kWH)	1
U5	Requested Incentive ($/Watt or $/kWH)	0.0100
	Output Terms	
U4	Index Value	7,358
U5	Total Incentive Payout	10

Pull-down Box for UFI type

Input Capital Cost of Project - ($s)

For incentives based on capacity: Input Rated Size of System in kW, this input is not used for First Year Energy Savings.

Input Annual Energy Production in kWHs for System Capacity UFIs, otherwise, for First Year Energy Savings kWH savings.

Index Value

Input requested incentive. For System Capacity UFIs, input $/Watt, otherwise, for First Year Energy Savings input $/kWH.

Amended based on Decision No. 70654

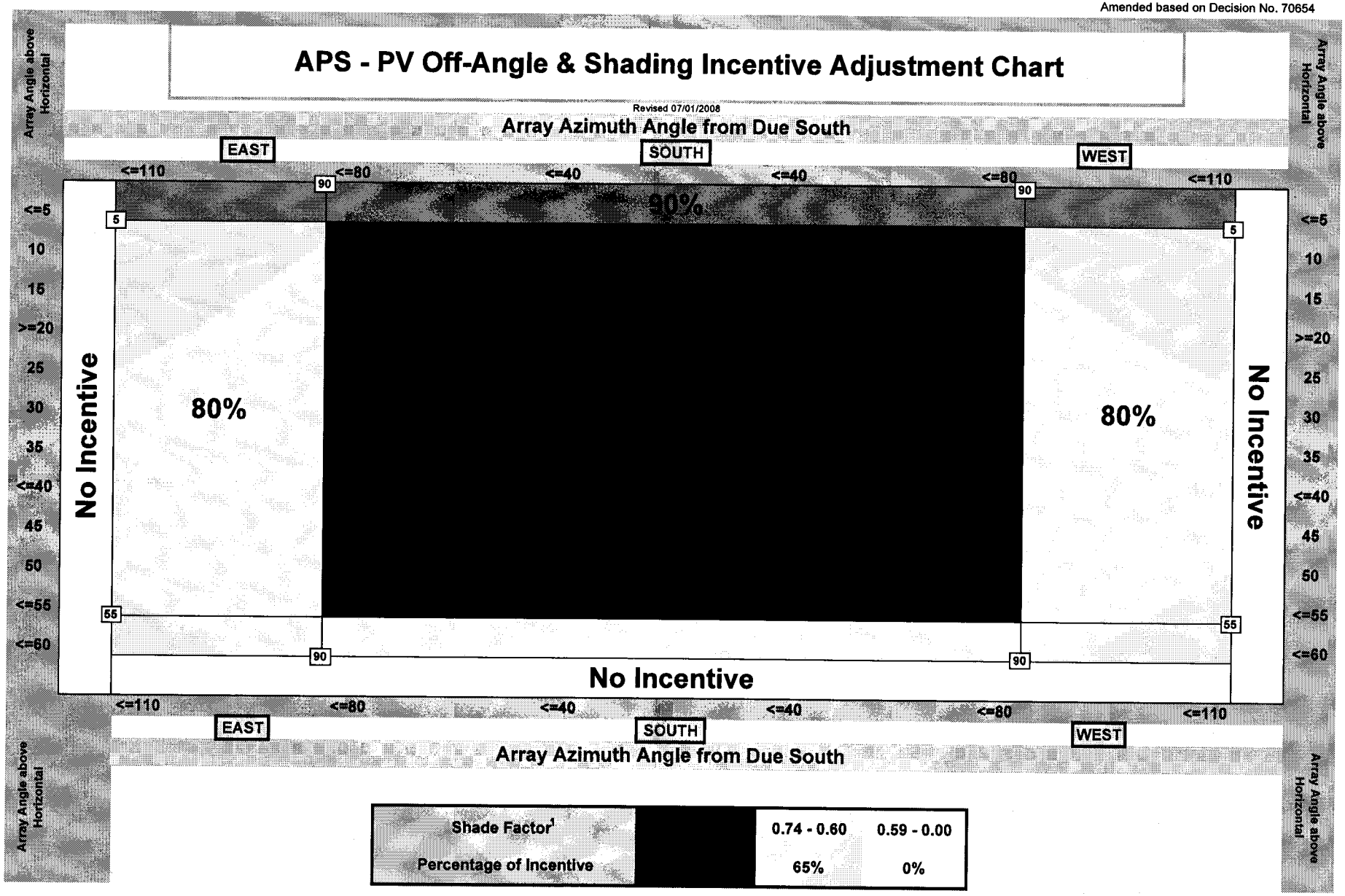
Exhibit 4

PV Off-Angle and Shading Adjustment Table

Amended based on Decision No. 70654

APS - PV Off-Angle & Shading Incentive Adjustment Chart

Revised 07/01/2008



Shade Factor[1]	0.74 - 0.60	0.59 - 0.00
Percentage of Incentive	65%	0%

The system installation will receive the lowest applicable incentive adjustment, reading from both the installation Angle Chart and Shading Adjustment

Notes:

1 "Shade Factor" is the percentage of annual solar insolation expected given latitude, shading and the available solar window.

APS Renewable Energy Standard
Amended based on Decision No. 70654

Attachment C

Renewable Energy Standard Rate Schedule

ADJUSTMENT SCHEDULE RES
RENEWABLE ENERGY STANDARD

APPLICATION

The Renewable Energy Standard ("RES") Adjustor shall apply to all retail Standard Offer or Direct Access service, excluding kWhs served in accordance with rate schedules SP-1 (Solar Partners), Solar-2, Solar-3, and Adjustment Schedules GPS-1 and GPS-2. All provisions of the customer's current applicable rate schedule will apply in addition to the RES Adjustor. From time to time, the RES program spending requirements will be evaluated and if necessary the charge and/or caps may be modified by the Commission. Any new charges/caps will be applied in billing cycle 1 beginning in the month following Commission approval in A.C.C. Decision No. 70654 and will not be prorated. Details regarding the administration of this Adjustor can be found in A.A.C. R14-2-1808. The RES Adjustor and the Demand Side Management Adjustor may be combined on the customer's bill and shown on the "Environmental Benefits Surcharge" line.

RATES

The bill shall be calculated at the following rates:

All kWh	$0.007937	per kWh

SURCHARGE LIMITS

The monthly total of the Renewable Energy Standard Adjustment Charge shall not exceed the following limits:

Residential Customers	$3.17	per service per month
Non-residential Customers	$117.93	per service per month
Non-residential Customers with demand of 3,000 kW or higher per month for three consecutive months	$353.78	per service per month

NON-REDLINED

ADJUSTMENT SCHEDULE RES
RENEWABLE ENERGY STANDARD

APPLICATION

The Renewable Energy Standard ("RES") Adjustor shall apply to all retail Standard Offer or Direct Access service, excluding kWhs served in accordance with rate schedules SP-1 (Solar Partners), Solar-2, Solar-3, and Adjustment Schedules GPS-1 and GPS-2. All provisions of the customer's current applicable rate schedule will apply in addition to the RES Adjustor. From time to time, the RES program spending requirements will be evaluated and if necessary the charge and/or caps may be modified by the Commission. Any new charges/caps will be applied in billing cycle 1 beginning in the month following Commission approval in A.C.C. Decision No. 70654 and will not be prorated. Details regarding the administration of this Adjustor can be found in A.A.C. R14-2-1808. The RES Adjustor and the Demand Side Management Adjustor may be combined on the customer's bill and shown on the "Environmental Benefits Surcharge" line.

RATES

The bill shall be calculated at the following rates:

All kWh	$0.007937	per kWh

SURCHARGE LIMITS

The monthly total of the Renewable Energy Standard Adjustment Charge shall not exceed the following limits:

Residential Customers	$3.17	per service per month
Non-residential Customers	$117.93	per service per month
Non-residential Customers with demand of 3,000 kW or higher per month for three consecutive months	$353.78	per service per month

REDLINED

ADJUSTMENT SCHEDULE RES
RENEWABLE ENERGY STANDARD

APPLICATION

The Renewable Energy Standard ("RES") Adjustor shall apply to all retail Standard Offer or Direct Access service, excluding kWhs served in accordance with rate schedules SP-1 (Solar Partners), Solar-2, Solar-3, and Adjustment Schedules GPS-1 and GPS-2. All provisions of the customer's current applicable rate schedule will apply in addition to the RES Adjustor. From time to time, the RES program spending requirements will be evaluated and if necessary the charge and/or caps may be modified by the Commission. Any new charges/caps will be applied in billing cycle 1 beginning in the month following Commission approval in A.C.C. Decision No. 70654 and will not be prorated. Details regarding the administration of this Adjustor can be found in A.A.C. R14-2-1808. The RES Adjustor and the Demand Side Management Adjustor may be combined on the customer's bill and shown on the "Environmental Benefits Surcharge" line.

RATES

The bill shall be calculated at the following rates:

All kWh	$0.~~003288~~007937	per kWh

SURCHARGE LIMITS

The monthly total of the Renewable Energy Standard Adjustment Charge shall not exceed the following limits:

Residential Customers	~~$1.32~~3.17	per service per month
Non-residential Customers	~~$48.84~~117.93	per service per month
Non-residential Customers with demand of 3,000 kW or higher per month for three consecutive months	~~$146.53~~353.78	per service per month